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The Low-Cost, Moderate-Cost, and Liberal Food Plans, 2007



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Abstract

The Low-Cost, Moderate-Cost, and Liberal Food Plans, three fundamental parts of the U.S. food guidance system, have been revised by USDA's Center for Nutrition Policy and Promotion, with assistance from USDA's Food and Nutrition Service, Economic Research Service, and Agricultural Research Service. The plans provide representative healthful market baskets at three different cost levels. This revision maintains the same inflation-adjusted costs as those of the previous three food plans, last revised in 2003. In line with previous food plans, an assumption used to develop these plans was that all purchased food is consumed at home. The newly revised (2007) Low-Cost, Moderate-Cost, and Liberal Food Plans differ from, and improve upon, the previous versions in a number of ways:

- The Plans are based on the most current dietary standards: the 2005 Dietary Guidelines for Americans as well as the 2005 MyPyramid Food Guidance System.
- The Plans use the latest data on food consumption, nutrient content, and food prices: the 2001-2002 National Health and Nutrition Examination Survey and the 2001-2002 Food Price Database.
- The Plans offer a more realistic reflection of the time available for home food preparation; hence, each plan incorporates more prepared foods within the recipes and requires fewer preparations from scratch.

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The Low-Cost, Moderate-Cost, and Liberal Food Plans, 2007

Executive Summary

The Low-Cost, Moderate-Cost, and Liberal Food Plans have been revised to reflect current dietary recommendations, food consumption patterns, food composition data, and food prices while maintaining the same inflation-adjusted costs as those of the previous three food plans, last revised in 2003.¹ This revision was undertaken by the U.S. Department of Agriculture's (USDA) Center for Nutrition Policy and Promotion (CNPP), with assistance from USDA's Food and Nutrition Service (FNS), Economic Research Service (ERS), and Agricultural Research Service (ARS).

These three plans, as well as the Thrifty Food Plan, are the four official USDA food plans maintained by CNPP. The Thrifty Food Plan serves as a national standard for a nutritious diet at a minimal cost and is used as the basis for maximum food stamp allotments. The Low-Cost, Moderate-Cost, and Liberal Food Plans are used for various purposes: bankruptcy courts often use the value of the Low-Cost Food Plan to determine the portion of a bankrupt person's income to allocate to necessary food expenses. The Department of Defense uses the value of the Liberal Food Plan to determine the Basic Allowance for Subsistence rates for all servicemembers. Many divorce courts use the values of the USDA Food Plans to set alimony payments. The Low-Cost, Moderate-Cost, and Liberal Plans are used in USDA's report *Expenditures on Children by Families*, which is used to set State child support guidelines and foster care payments.

The market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans specify the types and quantities of foods that people could purchase and prepare at home to obtain a nutritious diet at three cost levels. For each food plan, there are 15 market baskets—one for each of 15 age-gender groups. The Low-Cost Food Plan represents food expenditures in the second from the bottom quartile of food spending; the Moderate-Cost Food Plan, food expenditures in the second from the top quartile of food spending; and the Liberal Food Plan, food expenditures in the top quartile of food spending.

Food Plan Development

CNPP used two main data sets to revise the market baskets of all three food plans: the Federal Government's 2001-2002 National Health and Nutrition Examination Survey (NHANES) and the 2001-2002 Food Price Database. A mathematical optimization model was used to develop these food plans to meet required dietary standards and maintain specified cost levels.

¹ "Previous" Low-Cost, Moderate-Cost, and Liberal Food Plans refer to the 2003 plans. The "newly revised," "revised," or "new" Low-Cost, Moderate-Cost, and Liberal Food Plans refer to the 2007 food plans.

The dietary standards include (1) the 1997-2005 Recommended Dietary Allowances (RDAs), Adequate Intakes (AIs), and Acceptable Macronutrient Distribution Ranges (AMDRs); (2) the 2005 Dietary Guidelines for Americans; and (3) the 2005 MyPyramid food intake recommendations. The cost levels of the revised food plans' market baskets also remain equal to the inflation-adjusted cost of the previous food plans' market baskets.

For each of the three food plans, the model yielded a suggested consumption pattern that consisted of quantities of 58 food categories for each of the 15 age-gender groups. CNPP converted foods and quantities consumed into the corresponding set of purchasable foods and then collapsed them into a simplified group of 29 market basket groups.

Results

The 1-week market baskets of the 29 market basket groups as purchased for each of the 15 age-gender groups for each of the three food plans are shown in tables ES-1a-c. These individual market baskets may be combined to form a household market basket.

For each age-gender group, the market baskets of the three food plans meet all dietary standards with the exception of vitamin E, potassium, and sodium. However, for all three food plans, the market baskets for all age-gender groups contain more vitamin E and potassium than generally is consumed. It was not possible for any of the market baskets to meet the sodium guideline, so sodium was limited to no more than median consumption for each age-gender group in the sample. To meet the recommendations for vitamin E, potassium, and sodium would have resulted in market baskets that are very different from typical consumption (in the case of vitamin E and potassium) or would require changes in food-manufacturing practices (in the case of sodium). This revision of the market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans does meet food (e.g., fruit, vegetables, and milk) intake recommendations of the MyPyramid Food Guidance System.

To understand how reported diets would need to change to meet the dietary standards of the new Low-Cost, Moderate-Cost, and Liberal Food Plans, CNPP compared the population-weighted average market baskets for each plan (in pounds) with weighted average consumption (in pounds) based on the food expenditure quartile corresponding to each plan. The average market baskets for all three food plans contain more vegetables, fruits, and milk products and less other foods (fats, oils, sweets, etc.) compared with average consumption amounts. This is not surprising because the food plans represent a nutritious diet.

CNPP also compared the weighted average market baskets of the new and previous Low-Cost, Moderate-Cost, and Liberal Food Plans. This comparison shows the effects of changing dietary guidance over time. Compared with their respective previous market baskets, the new average market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans contain fewer pounds of grains (but more whole grain products), meat and

beans, and other foods, and more fruit, vegetables, and milk products. The 2005 Dietary Guidelines for Americans encourage increased intakes of fruit, vegetables, and fat-free or lowfat milk and dairy products. The new USDA food guidance system, MyPyramid, recommends greater consumption of these food groups than was the case with the 1992 Food Guide Pyramid. The increased amounts of these food groups in the revised food plans resulted inevitably in decreases of the other food groups.

Conclusions

The Low-Cost, Moderate-Cost, and Liberal Food Plans represent nutritious diets at various costs. This revision of the market baskets of each food plan reflects recent changes in dietary guidance and incorporates updated information on food composition, consumption patterns, and food prices at the same inflation-adjusted cost of the previous food plans. The new market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans are now official. Monthly cost updates of the three food plans will be based on the content of these baskets. Also, the list of foods and quantities specified in the market baskets may be used in nutrition and consumer education programs designed to help people eat a healthful diet at various cost levels.

Table ES-1a. Low-Cost Food Plan market baskets, quantities of food purchased for a week, by age-gender group, 2007

Food category	Children				
	1 year	2-3 years	4-5 years	6-8 years	9-11 years
Total pounds	18.49	19.41	23.23	25.24	34.87
<i>Pounds per week</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	0.76	0.90	1.30	0.39	1.87
Whole grain cereals (including hot cereal mixes)	0.11	0.16	0.38	0.23	0.21
Popcorn and other whole grain snacks	0.03	0.15	0.01	0.47	0.05
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	<u>0.39</u> 1.29	<u>0.63</u> 1.83	<u>0.79</u> 2.48	<u>1.42</u> 2.51	<u>0.77</u> 2.90
Vegetables					
All potato products	0.16	0.33	0.56	0.42	0.58
Dark-green vegetables	0.37	0.83	0.75	1.01	0.09
Orange vegetables	0.11	0.41	1.02	0.62	0.76
Canned and dry beans, lentils, and peas (legumes)	0.31	0.48	0.66	1.69	1.60
Other vegetables	<u>3.93</u> 4.88	<u>1.20</u> 3.25	<u>1.58</u> 4.57	<u>2.61</u> 6.35	<u>1.30</u> 4.33
Fruits					
Whole fruits	1.56	3.10	3.88	2.82	8.65
Fruit juices	<u>1.27</u> 2.82	<u>0.46</u> 3.56	<u>1.54</u> 5.42	<u>1.73</u> 4.55	<u>1.51</u> 10.16
Milk products					
Whole milk, yogurt, and cream	7.85	1.06	0.27	0.18	0.37
Lower fat and skim milk and lowfat yogurt	0.00	7.08	7.79	8.02	12.10
All cheese (including cheese soup and sauce)	0.01	0.03	0.02	0.00	0.04
Milk drinks and milk desserts	<u>0.00</u> 7.85	<u>0.00</u> 8.17	<u>0.03</u> 8.11	<u>0.00</u> 8.20	<u>0.06</u> 12.58
Meat and beans					
Beef, pork, veal, lamb, and game	0.32	0.30	0.31	2.09	0.53
Chicken, turkey, and game birds	0.37	0.49	0.50	0.44	0.49
Fish and fish products	0.18	0.83	0.54	0.34	0.55
Bacon, sausages, and luncheon meats (including spreads)	0.00	0.01	0.04	0.18	0.02
Nuts, nut butters, and seeds	0.09	0.14	0.41	0.18	0.79
Eggs and egg mixtures	<u>0.00</u> 0.97	<u>0.02</u> 1.79	<u>0.02</u> 1.81	<u>0.02</u> 3.25	<u>0.05</u> 2.43
Other foods					
Table fats, oils, and salad dressings	0.25	0.22	0.26	0.14	0.16
Gravies, sauces, condiments, and spices	0.20	0.23	0.32	0.20	0.37
Coffee and tea	0.00	0.00	0.00	0.00	0.00
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	0.21	0.18	0.20	0.02	0.62
Soups (ready-to-serve and condensed)	0.01	0.15	0.00	0.01	1.22
Soups (dry)	0.00	0.00	0.01	0.00	0.02
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	<u>0.02</u> 0.68	<u>0.00</u> 0.81	<u>0.00</u> 0.84	<u>0.00</u> 0.37	<u>0.02</u> 2.46

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

For children age 1, all milk and yogurt were assigned to the whole milk, yogurt, and cream category, because dietary guidance recommends consumption of primarily whole milk products for these children.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

Table ES-1a. Low-Cost Food Plan market baskets, quantities of food purchased for a week, by age-gender group, 2007
(cont'd)

Food category	Males				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
Total pounds	35.21	44.38	40.70	38.88	34.43
<i>Pounds per week</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	1.45	3.21	1.01	2.39	0.70
Whole grain cereals (including hot cereal mixes)	0.15	0.19	0.57	0.47	1.73
Popcorn and other whole grain snacks	0.97	0.05	0.38	0.05	0.03
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	1.03 3.60	1.18 4.64	1.31 3.27	1.17 4.08	0.56 3.02
Vegetables					
All potato products	1.20	2.00	2.26	1.36	1.99
Dark-green vegetables	0.62	0.53	1.01	1.15	0.87
Orange vegetables	0.43	0.55	0.91	0.90	0.71
Canned and dry beans, lentils, and peas (legumes)	1.87	1.63	1.83	1.26	1.47
Other vegetables	1.58 5.70	3.48 8.19	3.39 9.39	3.29 7.96	2.27 7.31
Fruits					
Whole fruits	3.93	6.27	6.04	6.98	4.75
Fruit juices	2.21 6.15	1.37 7.63	1.68 7.71	1.83 8.81	1.72 6.46
Milk products					
Whole milk, yogurt, and cream	1.31	1.37	1.15	0.49	0.65
Lower fat and skim milk and lowfat yogurt	10.18	9.12	9.26	10.99	11.46
All cheese (including cheese soup and sauce)	0.07	0.19	0.27	0.11	0.17
Milk drinks and milk desserts	0.54 12.10	0.32 11.01	0.27 10.96	0.23 11.82	0.10 12.38
Meat and beans					
Beef, pork, veal, lamb, and game	0.82	0.71	1.00	0.79	1.03
Chicken, turkey, and game birds	0.57	0.77	1.13	0.69	0.77
Fish and fish products	0.49	0.06	0.24	0.60	0.10
Bacon, sausages, and luncheon meats (including spreads)	0.12	0.13	0.19	0.09	0.06
Nuts, nut butters, and seeds	0.63	0.80	0.62	0.80	0.81
Eggs and egg mixtures	0.07 2.70	0.12 2.59	0.18 3.36	0.12 3.08	0.17 2.95
Other foods					
Table fats, oils, and salad dressings	0.24	0.56	0.58	0.37	0.43
Gravies, sauces, condiments, and spices	0.29	1.06	0.36	0.18	0.18
Coffee and tea	0.00	0.00	0.00	0.01	0.01
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	3.44	7.88	4.62	2.03	1.10
Sugars, sweets, and candies	0.19	0.57	0.22	0.12	0.12
Soups (ready-to-serve and condensed)	0.63	0.18	0.11	0.38	0.44
Soups (dry)	0.01	0.02	0.01	0.01	0.01
Frozen or refrigerated entrees (including pizza, fish sticks, frozen meals)	0.16 4.96	0.04 10.31	0.08 6.00	0.03 3.12	0.02 2.31

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

Table ES-1a. Low-Cost Food Plan market baskets, quantities of food purchased for a week, by age-gender group, 2007 (cont'd)

Food category	Females				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
Total pounds	33.51	35.79	38.13	34.77	29.33
<i>Pounds per week</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	2.24	2.22	1.71	2.52	1.50
Whole grain cereals (including hot cereal mixes)	0.17	0.09	0.22	0.09	0.26
Popcorn and other whole grain snacks	0.02	0.03	0.03	0.02	0.00
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	<u>0.94</u> 3.38	<u>1.16</u> 3.50	<u>0.89</u> 2.84	<u>0.54</u> 3.17	<u>0.72</u> 2.48
Vegetables					
All potato products	0.80	1.62	1.08	0.82	0.64
Dark-green vegetables	0.86	1.13	1.18	0.96	1.05
Orange vegetables	0.74	0.61	0.68	0.86	0.72
Canned and dry beans, lentils, and peas (legumes)	1.96	1.71	1.56	1.59	1.32
Other vegetables	<u>1.34</u> 5.70	<u>2.67</u> 7.75	<u>2.63</u> 7.13	<u>3.13</u> 7.35	<u>2.17</u> 5.90
Fruits					
Whole fruits	5.99	4.84	6.59	5.21	3.50
Fruit juices	<u>0.90</u> 6.90	<u>1.72</u> 6.56	<u>1.43</u> 8.02	<u>1.45</u> 6.66	<u>1.57</u> 5.07
Milk products					
Whole milk, yogurt, and cream	1.43	0.80	0.81	1.14	0.67
Lower fat and skim milk and lowfat yogurt	9.83	10.51	10.62	10.84	11.02
All cheese (including cheese soup and sauce)	0.11	0.10	0.18	0.05	0.03
Milk drinks and milk desserts	<u>0.37</u> 11.74	<u>0.19</u> 11.60	<u>0.25</u> 11.87	<u>0.21</u> 12.24	<u>0.10</u> 11.82
Meat and beans					
Beef, pork, veal, lamb, and game	0.46	0.69	0.86	0.70	0.78
Chicken, turkey, and game birds	0.74	0.68	1.03	1.00	0.83
Fish and fish products	0.54	0.36	0.44	0.42	0.04
Bacon, sausages, and luncheon meats (including spreads)	0.07	0.06	0.09	0.01	0.02
Nuts, nut butters, and seeds	0.70	0.53	0.76	0.73	0.79
Eggs and egg mixtures	<u>0.08</u> 2.59	<u>0.14</u> 2.45	<u>0.24</u> 3.42	<u>0.13</u> 2.98	<u>0.07</u> 2.53
Other foods					
Table fats, oils, and salad dressings	0.23	0.37	0.26	0.20	0.21
Gravies, sauces, condiments, and spices	0.12	0.16	0.15	0.09	0.08
Coffee and tea	0.00	0.00	0.00	0.00	0.01
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	2.57	3.10	4.13	1.69	0.87
Sugars, sweets, and candies	0.22	0.26	0.21	0.26	0.10
Soups (ready-to-serve and condensed)	0.00	0.01	0.06	0.12	0.24
Soups (dry)	0.04	0.01	0.02	0.00	0.01
Frozen or refrigerated entrees (including pizza, fish sticks, frozen meals)	<u>0.01</u> 3.21	<u>0.03</u> 3.94	<u>0.03</u> 4.86	<u>0.00</u> 2.36	<u>0.01</u> 1.53

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

Table ES-1b. Moderate-Cost Food Plan market baskets, quantities of food purchased for a week, by age-gender group, 2007

Food category	Children				
	1 year	2-3 years	4-5 years	6-8 years	9-11 years
Total pounds	23.88	21.01	25.85	26.92	37.95
<i>Pounds per week</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	1.05	0.48	0.96	0.72	0.77
Whole grain cereals (including hot cereal mixes)	0.05	0.23	0.14	0.21	0.06
Popcorn and other whole grain snacks	0.03	0.38	0.31	0.34	0.75
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	<u>0.36</u> <u>1.48</u>	<u>0.82</u> <u>1.90</u>	<u>1.23</u> <u>2.64</u>	<u>1.50</u> <u>2.78</u>	<u>1.33</u> <u>2.91</u>
Vegetables					
All potato products	0.40	0.74	0.70	0.43	0.09
Dark-green vegetables	1.31	0.72	0.80	0.88	3.19
Orange vegetables	0.07	0.38	1.32	0.66	0.85
Canned and dry beans, lentils, and peas (legumes)	0.47	0.55	0.41	1.28	1.59
Other vegetables	<u>4.65</u> 6.90	<u>1.69</u> 4.09	<u>2.98</u> 6.21	<u>2.65</u> 5.91	<u>4.14</u> 9.86
Fruits					
Whole fruits	2.13	2.99	3.46	3.37	5.68
Fruit juices	<u>1.60</u> 3.73	<u>1.47</u> 4.46	<u>1.81</u> 5.28	<u>1.79</u> 5.16	<u>1.66</u> 7.33
Milk products					
Whole milk, yogurt, and cream	8.65	0.13	0.40	0.18	0.29
Lower fat and skim milk and lowfat yogurt	0.00	8.63	8.40	8.62	12.77
All cheese (including cheese soup and sauce)	0.02	0.01	0.04	0.03	0.01
Milk drinks and milk desserts	<u>0.05</u> 8.72	<u>0.00</u> 8.77	<u>0.07</u> 8.91	<u>0.07</u> 8.89	<u>0.07</u> 13.14
Meat and beans					
Beef, pork, veal, lamb, and game	0.28	0.10	0.34	0.50	0.45
Chicken, turkey, and game birds	0.23	0.05	0.29	1.32	0.58
Fish and fish products	0.25	0.85	1.14	1.28	1.91
Bacon, sausages, and luncheon meats (including spreads)	0.02	0.01	0.04	0.04	0.07
Nuts, nut butters, and seeds	0.21	0.29	0.28	0.23	0.21
Eggs and egg mixtures	<u>0.02</u> 1.01	<u>0.14</u> 1.44	<u>0.03</u> 2.12	<u>0.03</u> 3.39	<u>0.03</u> 3.26
Other foods					
Table fats, oils, and salad dressings	0.10	0.26	0.16	0.21	0.34
Gravies, sauces, condiments, and spices	0.36	0.04	0.13	0.12	0.46
Coffee and tea	0.00	0.00	0.00	0.00	0.00
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	0.14	0.04	0.24	0.34	0.49
Sugars, sweets, and candies	0.02	0.02	0.05	0.03	0.08
Soups (ready-to-serve and condensed)	0.20	0.01	0.09	0.08	0.04
Soups (dry)	0.01	0.00	0.00	0.01	0.02
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	<u>1.20</u> 2.03	<u>0.00</u> 0.36	<u>0.04</u> 0.71	<u>0.01</u> 0.79	<u>0.02</u> 1.44

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

For children age 1, all milk and yogurt were assigned to the whole milk, yogurt, and cream category, because dietary guidance recommends consumption of primarily whole milk products for these children.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

Table ES-1b. Moderate-Cost Food Plan market baskets, quantities of food purchased for a week, by age-gender group, 2007 (cont'd)

Food category	Males				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
Total pounds	37.43	44.04	45.00	41.20	38.99
<i>Pounds per week</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	0.29	2.25	2.39	1.74	0.82
Whole grain cereals (including hot cereal mixes)	0.03	0.09	0.10	0.14	1.34
Popcorn and other whole grain snacks	1.95	0.82	0.20	0.74	0.28
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	<u>1.35</u> 3.62	<u>1.89</u> <u>5.05</u>	<u>2.04</u> 4.74	<u>1.30</u> <u>3.92</u>	<u>0.88</u> <u>3.32</u>
Vegetables					
All potato products	1.61	1.81	1.61	1.20	1.84
Dark-green vegetables	0.50	1.07	1.12	1.10	2.95
Orange vegetables	1.06	0.99	0.88	0.78	0.74
Canned and dry beans, lentils, and peas (legumes)	2.21	3.11	2.64	1.61	1.51
Other vegetables	<u>2.99</u> 8.37	<u>3.10</u> 10.08	<u>3.39</u> 9.64	<u>3.59</u> 8.28	<u>2.86</u> 9.90
Fruits					
Whole fruits	5.28	7.07	7.00	5.90	5.91
Fruit juices	<u>2.22</u> 7.50	<u>1.80</u> 8.87	<u>1.68</u> 8.68	<u>1.74</u> 7.63	<u>1.70</u> 7.61
Milk products					
Whole milk, yogurt, and cream	0.37	0.42	0.39	0.38	0.44
Lower fat and skim milk and lowfat yogurt	12.94	12.12	12.33	12.82	12.03
All cheese (including cheese soup and sauce)	0.08	0.11	0.13	0.06	0.11
Milk drinks and milk desserts	<u>0.17</u> 13.55	<u>0.20</u> 12.85	<u>0.15</u> 13.00	<u>0.14</u> 13.41	<u>0.15</u> 12.73
Meat and beans					
Beef, pork, veal, lamb, and game	0.78	0.88	1.04	1.02	0.87
Chicken, turkey, and game birds	0.71	2.07	2.95	3.79	2.22
Fish and fish products	0.59	0.61	0.42	0.42	0.15
Bacon, sausages, and luncheon meats (including spreads)	0.04	0.10	0.11	0.07	0.06
Nuts, nut butters, and seeds	0.64	0.34	0.33	0.32	0.53
Eggs and egg mixtures	<u>0.08</u> 2.85	<u>0.12</u> 4.13	<u>0.17</u> 5.03	<u>0.16</u> 5.78	<u>0.10</u> 3.92
Other foods					
Table fats, oils, and salad dressings	0.25	0.44	0.47	0.31	0.39
Gravies, sauces, condiments, and spices	0.17	0.26	0.46	0.21	0.21
Coffee and tea	0.00	0.00	0.01	0.00	0.00
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	0.97	1.93	2.64	1.40	0.62
Sugars, sweets, and candies	0.06	0.14	0.13	0.11	0.07
Soups (ready-to-serve and condensed)	0.00	0.24	0.15	0.12	0.21
Soups (dry)	0.01	0.01	0.01	0.02	0.00
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	<u>0.07</u> 1.53	<u>0.05</u> 3.06	<u>0.04</u> 3.91	<u>0.01</u> 2.18	<u>0.00</u> 1.51

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

Table ES-1b. Moderate-Cost Food Plan market baskets, quantities of food purchased for a week, by age-gender group, 2007 (cont'd)

Food category	Females				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
Total pounds	37.56	36.49	38.94	38.53	34.58
<i>Pounds per week</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	1.30	1.53	1.09	2.67	2.11
Whole grain cereals (including hot cereal mixes)	0.20	1.19	0.68	0.07	0.07
Popcorn and other whole grain snacks	0.48	0.02	0.72	0.29	0.04
Non-whole grain breads, cereals, rice, pasta, pies pastries, snacks, and flours	<u>1.31</u> 3.30	<u>0.90</u> 3.64	<u>0.92</u> 3.41	<u>0.28</u> 3.31	<u>0.55</u> 2.78
Vegetables					
All potato products	1.04	1.26	1.49	1.19	0.89
Dark-green vegetables	2.77	1.83	1.80	1.75	2.67
Orange vegetables	0.84	0.68	1.59	0.90	0.72
Canned and dry beans, lentils, and peas (legumes)	1.50	2.33	2.04	1.12	1.46
Other vegetables	<u>4.04</u> 10.19	<u>2.72</u> 8.81	<u>3.54</u> 10.46	<u>2.62</u> 7.58	<u>2.83</u> 8.57
Fruits					
Whole fruits	5.63	5.07	5.14	7.80	4.93
Fruit juices	<u>1.79</u> 7.41	<u>1.64</u> 6.71	<u>1.50</u> 6.64	<u>1.57</u> 9.38	<u>1.61</u> 6.55
Milk products					
Whole milk, yogurt, and cream	0.76	0.58	0.40	0.06	0.22
Lower fat and skim milk and lowfat yogurt	12.12	12.59	12.86	13.25	12.80
All cheese (including cheese soup and sauce)	0.07	0.01	0.08	0.00	0.01
Milk drinks and milk desserts	<u>0.10</u> 13.05	<u>0.06</u> 13.24	<u>0.05</u> 13.40	<u>0.02</u> 13.34	<u>0.04</u> 13.08
Meat and beans					
Beef, pork, veal, lamb, and game	0.47	0.78	0.86	0.45	0.75
Chicken, turkey, and game birds	0.25	0.97	1.45	2.13	0.94
Fish and fish products	1.13	0.26	0.32	0.56	0.13
Bacon, sausages, and luncheon meats (including spreads)	0.03	0.01	0.02	0.00	0.01
Nuts, nut butters, and seeds	0.12	0.24	0.58	0.54	0.79
Eggs and egg mixtures	<u>0.03</u> 2.04	<u>0.02</u> 2.28	<u>0.06</u> 3.30	<u>0.04</u> 3.73	<u>0.03</u> 2.65
Other foods					
Table fats, oils, and salad dressings	0.41	0.24	0.27	0.32	0.19
Gravies, sauces, condiments, and spices	0.31	0.36	0.16	0.14	0.10
Coffee and tea	0.00	0.00	0.00	0.00	0.00
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	0.69	0.42	0.92	0.30	0.26
Sugars, sweets, and candies	0.06	0.08	0.06	0.02	0.04
Soups (ready-to-serve and condensed)	0.04	0.70	0.31	0.40	0.36
Soups (dry)	0.00	0.00	0.00	0.01	0.00
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	<u>0.05</u> 1.57	<u>0.01</u> 1.81	<u>0.02</u> 1.75	<u>0.00</u> 1.18	<u>0.00</u> 0.96

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

Table ES-1c. Liberal Food Plan market baskets, quantities of food purchased for a week, by age-gender group, 2007

Food category	Children				
	1 year	2-3 years	4-5 years	6-8 years	9-11 years
Total pounds	22.37	22.39	32.07	33.47	51.34
<i>Pounds per week</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	0.00	0.01	1.38	0.84	1.37
Whole grain cereals (including hot cereal mixes)	0.23	0.10	0.12	0.07	0.07
Popcorn and other whole grain snacks	0.00	0.40	0.20	0.50	0.46
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	<u>0.37</u> 0.59	<u>0.69</u> 1.20	<u>0.93</u> 2.63	<u>1.20</u> 2.60	<u>1.46</u> 3.36
Vegetables					
All potato products	0.64	1.22	0.73	0.76	2.16
Dark-green vegetables	1.11	0.47	0.53	0.63	2.75
Orange vegetables	0.10	0.41	0.95	0.64	2.27
Canned and dry beans, lentils, and peas (legumes)	0.45	1.33	1.06	1.72	1.24
Other vegetables	<u>2.94</u> 5.24	<u>1.88</u> 5.31	<u>1.59</u> 4.87	<u>2.50</u> 6.24	<u>4.05</u> 12.47
Fruits					
Whole fruits	3.66	2.49	9.98	9.06	14.67
Fruit juices	<u>1.57</u> 5.23	<u>1.28</u> 3.77	<u>1.86</u> 11.84	<u>1.73</u> 10.79	<u>1.88</u> 16.55
Milk products					
Whole milk, yogurt, and cream	9.54	0.36	0.23	0.27	0.35
Lower fat and skim milk and lowfat yogurt	0.00	9.07	9.29	9.16	13.82
All cheese (including cheese soup and sauce)	0.01	0.03	0.04	0.03	0.05
Milk drinks and milk desserts	<u>0.03</u> 9.58	<u>0.05</u> 9.52	<u>0.06</u> 9.62	<u>0.11</u> 9.57	<u>0.11</u> 14.34
Meat and beans					
Beef, pork, veal, lamb, and game	0.25	0.13	0.31	0.54	0.68
Chicken, turkey, and game birds	0.17	0.10	0.31	0.99	0.53
Fish and fish products	0.27	0.85	1.21	1.11	1.01
Bacon, sausages, and luncheon meats (including spreads)	0.01	0.08	0.03	0.09	0.21
Nuts, nut butters, and seeds	0.27	0.18	0.32	0.40	0.57
Eggs and egg mixtures	<u>0.01</u> 0.98	<u>0.13</u> 1.48	<u>0.02</u> 2.21	<u>0.01</u> 3.14	<u>0.04</u> 3.04
Other foods					
Table fats, oils, and salad dressings	0.13	0.34	0.17	0.20	0.21
Gravies, sauces, condiments, and spices	0.36	0.38	0.39	0.27	0.23
Coffee and tea	0.00	0.00	0.00	0.00	0.00
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	0.12	0.29	0.23	0.41	0.93
Sugars, sweets, and candies	0.12	0.06	0.03	0.05	0.10
Soups (ready-to-serve and condensed) soups (dry)	0.01 0.01	0.00 0.00	0.05 0.01	0.15 0.01	0.08 0.02
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	<u>0.01</u> 0.75	<u>0.04</u> 1.12	<u>0.02</u> 0.90	<u>0.04</u> 1.13	<u>0.03</u> 1.59

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

For children age 1, all milk and yogurt were assigned to the whole milk, yogurt, and cream category, because dietary guidance recommends consumption of primarily whole milk products for these children.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

**Table ES-1c. Liberal Food Plan market baskets, quantities of food purchased for a week, by age-gender group, 2007
(cont'd)**

Food category	Males				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
Total pounds	43.50	49.01	50.36	48.87	46.94
<i>Pounds per week</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	0.37	2.59	1.34	2.23	1.92
Whole grain cereals (including hot cereal mixes)	0.13	0.50	1.74	0.10	0.14
Popcorn and other whole grain snacks	1.48	0.48	0.42	0.65	0.15
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	<u>2.07</u> 4.04	<u>1.47</u> <u>5.04</u>	<u>1.72</u> <u>5.22</u>	<u>1.45</u> <u>4.43</u>	<u>0.95</u> <u>3.16</u>
Vegetables					
All potato products	2.44	1.23	2.01	1.80	1.93
Dark-green vegetables	0.84	1.06	1.58	1.97	4.70
Orange vegetables	0.68	0.99	1.05	1.07	0.99
Canned and dry beans, lentils, and peas (legumes)	2.93	2.70	2.96	2.51	2.82
Other vegetables	<u>4.13</u> <u>11.01</u>	<u>5.51</u> <u>11.48</u>	<u>4.66</u> <u>12.26</u>	<u>4.20</u> <u>11.55</u>	<u>3.08</u> <u>13.52</u>
Fruits					
Whole fruits	7.12	9.16	8.03	8.67	8.36
Fruit juices	<u>2.08</u> 9.20	<u>1.76</u> 10.93	<u>1.62</u> <u>9.65</u>	<u>1.24</u> <u>9.91</u>	<u>1.71</u> 10.07
Milk products					
Whole milk, yogurt, and cream	0.46	0.79	0.60	0.53	0.27
Lower fat and skim milk and lowfat yogurt	13.67	13.34	13.06	13.40	13.32
All cheese (including cheese soup & sauce)	0.08	0.09	0.22	0.09	0.05
Milk drinks and milk desserts	<u>0.14</u> 14.36	<u>0.16</u> 14.36	<u>0.24</u> 14.12	<u>0.48</u> 14.50	<u>0.21</u> 13.85
Meat and beans					
Beef, pork, veal, lamb, and game	0.89	2.18	1.47	1.26	0.92
Chicken, turkey, and game birds	0.23	0.25	1.66	1.54	2.64
Fish and fish products	1.14	0.49	0.50	0.95	0.39
Bacon, sausages, and luncheon meats (including spreads)	0.04	0.11	0.15	0.06	0.05
Nuts, nut butters, and seeds	0.41	0.60	0.39	0.52	0.20
Eggs and egg mixtures	<u>0.27</u> 2.99	<u>0.11</u> 3.73	<u>0.18</u> 4.36	<u>0.17</u> 4.51	<u>0.08</u> 4.28
Other foods					
Table fats, oils, and salad dressings	0.34	0.38	0.50	0.52	0.51
Gravies, sauces, condiments, and spices	0.42	0.44	0.50	0.22	0.30
Coffee and tea	0.00	0.00	0.00	0.01	0.00
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	0.79	1.77	3.30	2.85	0.56
Sugars, sweets, and candies	0.08	0.35	0.16	0.13	0.06
Soups (ready-to-serve and condensed)	0.23	0.52	0.25	0.20	0.62
Soups (dry)	0.01	0.01	0.02	0.01	0.01
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	<u>0.03</u> 1.89	<u>0.01</u> 3.47	<u>0.02</u> 4.75	<u>0.03</u> 3.96	<u>0.00</u> 2.05

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

**Table ES-1c. Liberal Food Plan market baskets, quantities of food purchased for a week, by age-gender group, 2007
(cont'd)**

Food category	Females				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
Total pounds	47.82	41.68	46.93	41.15	40.32
<i>Pounds per week</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	1.29	1.89	1.69	2.24	2.09
Whole grain cereals (including hot cereal mixes)	0.21	0.36	0.72	0.08	0.08
Popcorn and other whole grain snacks	0.44	0.04	0.03	0.75	0.02
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	<u>1.66</u> 3.60	<u>1.21</u> 3.50	<u>1.26</u> 3.69	<u>0.44</u> 3.50	<u>0.84</u> 3.04
Vegetables					
All potato products	2.41	1.94	1.96	1.50	1.07
Dark-green vegetables	1.46	1.73	3.14	1.18	4.65
Orange vegetables	0.80	0.87	0.89	0.88	0.94
Canned and dry beans, lentils, peas (legumes)	2.52	2.27	2.37	1.31	1.83
Other vegetables	<u>2.91</u> 10.10	<u>3.94</u> 10.74	<u>3.82</u> 12.18	<u>3.20</u> 8.08	<u>2.99</u> 11.47
Fruits					
Whole fruits	12.18	6.07	9.42	9.88	7.38
Fruit juices	<u>1.73</u> 13.91	<u>1.58</u> 7.65	<u>1.65</u> 11.06	<u>0.44</u> 10.32	<u>0.39</u> 7.78
Milk products					
Whole milk, yogurt, and cream	0.37	0.39	0.33	0.21	0.19
Lower fat and skim milk and lowfat yogurt	13.79	14.19	13.62	14.37	13.89
All cheese (including cheese soup and sauce)	0.08	0.28	0.09	0.01	0.00
Milk drinks and milk desserts	<u>0.18</u> 14.42	<u>0.10</u> 14.97	<u>0.17</u> 14.22	<u>0.06</u> 14.66	<u>0.04</u> 14.13
Meat and beans					
Beef, pork, veal, lamb, and game	1.30	0.96	0.86	0.86	0.80
Chicken, turkey, and game birds	1.48	0.31	0.72	0.78	0.74
Fish and fish products	0.60	0.39	0.54	1.30	0.46
Bacon, sausages, and luncheon meats (including spreads)	0.08	0.14	0.08	0.00	0.05
Nuts, nut butters, and seeds	0.28	0.70	0.76	0.64	0.79
Eggs and egg mixtures	<u>0.04</u> 3.77	<u>0.07</u> 2.57	<u>0.08</u> 3.05	<u>0.10</u> 3.69	<u>0.03</u> 2.87
Other foods					
Table fats, oils, and salad dressings	0.44	0.38	0.37	0.26	0.20
Gravies, sauces, condiments, and spices	0.32	0.39	0.37	0.17	0.11
Coffee and tea	0.00	0.00	0.00	0.00	0.00
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	0.98	1.05	1.64	0.27	0.09
Sugars, sweets, and candies	0.10	0.13	0.09	0.04	0.02
Soups (ready-to-serve and condensed)	0.15	0.25	0.22	0.17	0.60
Soups (dry)	0.02	0.00	0.01	0.01	0.01
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	<u>0.02</u> 2.02	<u>0.03</u> 2.24	<u>0.04</u> 2.74	<u>0.00</u> 0.92	<u>0.00</u> 1.04

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

The Low-Cost, Moderate-Cost, and Liberal Food Plans, 2007

Introduction

The U.S. Department of Agriculture's (USDA) Low-Cost, Moderate-Cost, and Liberal Food Plans serve as national standards for nutritious diets at various cost levels. Each plan represents a set of market baskets, applicable to one of 15 age-gender groups. Each market basket contains a selection of foods in quantities that reflect current dietary recommendations, food composition data, food prices, and actual consumption patterns. The three plans, as well as the fourth, the Thrifty Food Plan, are the official USDA Food Plans maintained by the USDA Center for Nutrition Policy and Promotion (CNPP). Revised in 2007 (Carlson et al., 2007), the Thrifty Food Plan serves as the basis for maximum food stamp allotments. Bankruptcy courts often use the value of the Low-Cost Food Plan to determine the portion of a bankrupt person's income to allocate to necessary food expenses. The Department of Defense uses the value of the Liberal Food Plan to determine the Basic Allowance for Subsistence rates for all servicemembers. Many divorce courts use the values of the USDA Food Plans to set alimony payments. The Low-Cost, Moderate-Cost, and Liberal Food Plans are used in USDA's report *Expenditures on Children by Families* (Lino, 2007), which is used to set State child support guidelines and foster care payments.

This report presents a revision of the market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans to reflect recent changes in dietary guidance and incorporates updated information on food composition, consumption patterns, and food prices at the same inflation-adjusted cost of the previous three food plans.² This report provides background information on the newly revised market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans and describes the data sources, dietary standards, and methods used to revise the market baskets. To illustrate some of the implications of the new market baskets of the three plans, CNPP compared them with both reported consumption patterns and the previous market baskets.

The market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans are important as national standards that illustrate how a nutritious household diet based on various budgets can be attained. Past research has found that regardless of income level, most people do not consume a healthful diet (Basiotis, Carlson, Gerrior, Juan, & Lino, 2002). Therefore, the market baskets of the three food plans are useful as guides in educational programs and as references for policies designed to assist families in efficiently budgeting their food expenditures and improving their diets.

² "Previous" Low-Cost, Moderate-Cost, and Liberal Food Plans refer to the 2003 plans. The "newly revised," "revised," or "new" Low-Cost, Moderate-Cost, and Liberal Food Plans refer to the 2007 food plans.

Historical Background of the USDA Food Plans

For over 100 years, the USDA has prepared guides for selecting nutritious diets at different cost levels. In 1894, the Department published information on the quantity of foods purchasable at a relatively economical price level that met the nutrient standard for the average American male undertaking moderate physical work. In this original food plan, nutrient needs, food composition, and the price of foods were factored in—the criteria still used in the development of food plans (Cofer, Grossman, & Clark, 1962).

In the 1920s, research had demonstrated the presence of minerals and vitamins in foods and their dietary benefits. USDA developed basic food plans that were adequate in nutrients, moderate in cost, and satisfying in flavor. These early food plans and diet guides provided consumers with practical and economical advice on healthful eating. In the 1930s, USDA developed four nutritious food plans at different cost levels for families with varying incomes. These plans were (1) the Restricted Food Plan for Emergency Use, (2) the Minimum-Cost Food Plan, (3) the Moderate-Cost Food Plan, and (4) the Liberal-Cost Food Plan. The two lower cost food plans were used in programs for low-income families affected by the Depression and were replaced in the early 1940s by the Low-Cost Food Plan. The early food plans were revised periodically to reflect changes in dietary guidance, consumption behavior, and food prices (Cofer et al., 1962).

In 1961, the Economy Food Plan was developed as a nutritionally adequate diet for short-term or emergency use. This plan, priced at less than the Low-Cost Plan, served as the basis for maximum food stamp allotments, as stipulated in the 1964 Food Stamp Program Act. In 1975, the Economy Food Plan was replaced by the Thrifty Food Plan, which represented a completely new set of market baskets but at the same minimal cost as the Economy Food Plan. The Thrifty Food Plan was also designed for long-term use. As the new basis for the maximum food stamp allotments, the Thrifty Food Plan represented a minimal cost diet based on up-to-date dietary recommendations, food composition data, food habits, and food price information.

All four food plan market baskets were revised periodically to reflect changes in dietary guidance, eating patterns, and food prices. The market baskets of the Thrifty Food Plan were revised last year (Carlson et al., 2007) with data from the 2001-2002 National Health and Nutrition Examination Survey (NHANES) and the 2001-2002 Food Price Database (which was constructed by merging information from the 2001-2002 NHANES on foods consumed with price data from the Nielsen Homescan™ Panel). The previous revision of the Low-Cost, Moderate-Cost, and Liberal Food Plans was in 2003; 1989-91 data were used (Carlson et al., 2003).

This current revision of the Low-Cost, Moderate-Cost, and Liberal Food Plans is the counterpart to the recent revision of the Thrifty Food Plan, and it captures important changes in nutrient content of foods, food preparation methods, eating patterns, and price information that have occurred since 1989-91. Also, since the 2003 market baskets were

released, dietary guidance has been updated with the issuance of the Dietary Reference Intakes (DRIs) in 1997 through 2005, the 2005 Dietary Guidelines for Americans, and the 2005 MyPyramid Food Guidance System. Lastly, relative food prices have changed over time, affecting food choices and consumption patterns and thereby representing another reason for the revision.

Data

Two main data sets were used in revising the Low-Cost, Moderate-Cost, and Liberal Food Plan market baskets: the Federal Government's 2001-2002 NHANES and the 2001-2002 Food Price Database.

2001-2002 National Health and Nutrition Examination Survey

NHANES provides information about participants' consumption of foods and nutrients, as well as extensive health-related data and information about participants' demographic and socioeconomic characteristics. NHANES data for 2001-2002, the most recent data available at the time of this revision, were used to update the market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans. The previous revision of these market baskets was based on data from the Federal Government's 1989-91 Continuing Survey of Food Intakes by Individuals, which has since been integrated with NHANES.

NHANES 2001-2002, a complex, multistage probability sample of the civilian non-institutionalized population of the United States, consists of a sampling of individuals of all ages. NHANES 2001-2002 also includes expanded samples of low-income people, Mexican Americans, African Americans, adolescents 12 to 19 years old, and adults 60 years old and older.³

For NHANES 2001-2002, individuals' dietary intakes were collected for 1 day. Prior research has indicated that food intake data based on 1-day dietary recall are reliable measures of usual intakes of population groups (Basiotis, Welsh, Cronin, Kelsay, & Mertz, 1987). Data were collected through an in-person interview with respondents. A 24-hour dietary recall was administered by an interviewer in a mobile examination center. Typically, for children less than 6 years old, information was provided by a parent (or a proxy); the parent or proxy could also consult with others, such as a daycare provider, regarding what the child ate. For 6- to 11-year-olds, intake information was provided by the child, with assistance typically from a parent (or proxy). Information about dietary intake for individuals 12 years old and older was self-reported.

³ For more information on NHANES data, see www.cdc.gov/nchs/data/nhanes/nhanes_01_02/general_data_release_doc.pdf.

This revision of the market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans is based upon data collected from participants ages 1 year old and older. The final sample for this revision of the three food plans consisted of 6,753 individuals.⁴ Pregnant and lactating women were excluded. The final sample reported consuming about 4,152 different foods. Information about the ingredients, nutrient content, and amount consumed of each of these foods is contained in the NHANES data sets. CNPP used statistical weights to ensure that the sample for the plans was representative of the U.S. population.

2001-2002 Food Price Database

The 2001-2002 Food Price Database was created by CNPP, with assistance from USDA's Economic Research Service and USDA's Food and Nutrition Service, by merging information about food consumption from NHANES with national data on food prices from the 2001 and 2002 Nielsen Homescan™ Panels (2005). The Panels contain the prices paid for food items by 16,821 households, selected and weighted to reflect the U.S. population, in the 48 coterminous States. The food purchases of these households were tracked over a 1-year period and include items normally not in supermarket scanner data, such as fresh produce, random-weight meats, and bakery products that are priced by the item. Foods purchased at supermarkets, convenience stores, warehouse clubs, mass merchandisers, and drug stores are included.

The two data sources were merged because NHANES has extensive information about reported food intake but does not contain information about food prices or food expenditures. For the previous revision of the USDA Food Plans, CNPP constructed a similar database (Bowman, 1997).

Creation of the Food Price Database involved the following steps:

1. Identifying all foods reported as being consumed by individuals participating in NHANES 2001-2002.
2. Identifying which foods should be purchased in the ready-to-eat or ready-to-heat form and which foods should be prepared at home from purchased ingredients.
3. Reviewing the recipes for foods prepared at home for practicality (e.g., ingredients that could be easily purchased, such as dried beans, but are being bought in canned or frozen form; using convenience items such as box mixes and seasoning packets; and purchasing items such as ready-to-use sauces, pie crusts, and breads).
4. Converting all foods from the partially prepared ingredients in the recipes (e.g., cooked pasta, peeled and cored apples) to the purchasable form by adjusting for refuse factors and cooking loss or gain.
5. Pricing all foods and ingredients by using data from the 2001 and 2002 Nielsen Homescan™ Panels.
6. Putting the ingredients' cost into the recipes and calculating the price of the food in the "as-consumed" form.

⁴ This sample consists of people with food expenditures in the top three quartiles of food spending because the Low-Cost, Moderate-Cost, and Liberal Food Plans traditionally have applied to these quartiles. This is explained more fully in the methods section.

For many foods, the USDA food codes used to code dietary intake data distinguish the level of convenience the consumer selects. For example, macaroni and cheese has codes that detail whether it is made from scratch, made from a box mix, or purchased as a frozen entree. For other foods, CNPP reviewed data on foods most frequently consumed by participants in NHANES to determine the form in which foods were most likely purchased. Commercially prepared foods were matched directly to foods in the Nielsen data to obtain a price. For foods prepared at home, CNPP used data from version 1 of the USDA's Food and Nutrient Database for Dietary Studies (FNDDS) to break the foods down into specific ingredients. Because these recipes were originally created to calculate the nutrient content of foods rather than the price, some recipes had to be modified to match ingredients that people could reasonably purchase in stores. This process generated an additional list of items that could be purchased in the ready-to-eat form as well as additional convenience items to use in preparing foods.

Other foods represented in the FNDDS recipes are cooked or processed (peeled, shelled, etc.) and must be adjusted to retail form before pricing. For such foods, cooking and refuse conversion factors that adjust for the loss or gain in food weight due to cooking and preparation were applied to all relevant ingredients.⁵

For example, steamed vegetables were converted to raw, unprepared forms, and cooked pasta was converted to its uncooked form. Similarly, cooked eggs were converted to eggs with shells, and peeled bananas were converted to their purchasable form with the peel. For more information on the development of the Food Price Database, see Bowman (1997) and Carlson et al. (2007 manuscript in preparation).

To determine retail prices that would be used to calculate the costs of foods, CNPP used the 2001 and 2002 Nielsen Homescan™ Panels. The average price paid by these households for each food item bought was calculated. All brands and brand sizes of a food reported as purchased during the year were used in determining prices and calculated on a per unit basis. If a household purchased a food item more than once, all purchase occasions were used to determine average price per unit. For example, for skim milk, all brands, sizes, and purchase occasions of skim milk bought by households during the year were used in determining the price per gram of skim milk. Foods were priced in dollar amounts per 100 grams.

The calculated average prices were then matched to each food reported consumed by participants age 1 year and older in NHANES 2001-2002. Ingredients in a food item, such as milk, eggs, butter, and salt in scrambled eggs, were priced separately.

⁵ USDA National Nutrient Database for Standard Reference (Release 16 and 18, Nutrient Data Laboratory home page, <http://www.ars.usda.gov/Services/docs.htm?docid=8964>) contains data on the weight of cooked and uncooked foods as well as refuse factors. These data permit computation of cooking conversion factors. Some waste conversion factors that adjust for waste when food is prepared (e.g., due to peeling, coring, slicing, de-boning, dicing, and draining in the case of canned goods) are found in USDA Agriculture Handbook No. 102 *Food Yields: Summarized by Different Stages of Preparation* (USDA, 1975). Food ingredients that are cooked and/or have a waste factor were converted by using either or both conversion factors and then priced.

All food ingredients were then converted back to the prepared form in the recipe, and the food was priced per 100 grams. To illustrate, first, scrambled eggs were separated into ingredients: eggs without the shell, milk, butter, and salt. Second, these ingredients were then adjusted for loss in weight due to cooking (e.g., the loss of moisture in eggs and milk) and for refuse in food preparation (e.g., the shell of the egg). Third, using Nielsen data, CNPP derived national average prices paid by all households to estimate the price of each of the ingredients per 100 grams. Fourth, the food ingredients were then regrouped into the food that participants reported consuming—the scrambled eggs—and this food was priced per 100 grams.

For some infrequently purchased food items, such as deer meat, Nielsen data did not contain prices. Proxy prices were therefore used. The proxies were determined by using the closest substitute for the food item or food services found on the World Wide Web. This applied to less than 5 percent of the as-consumed foods.

Methods

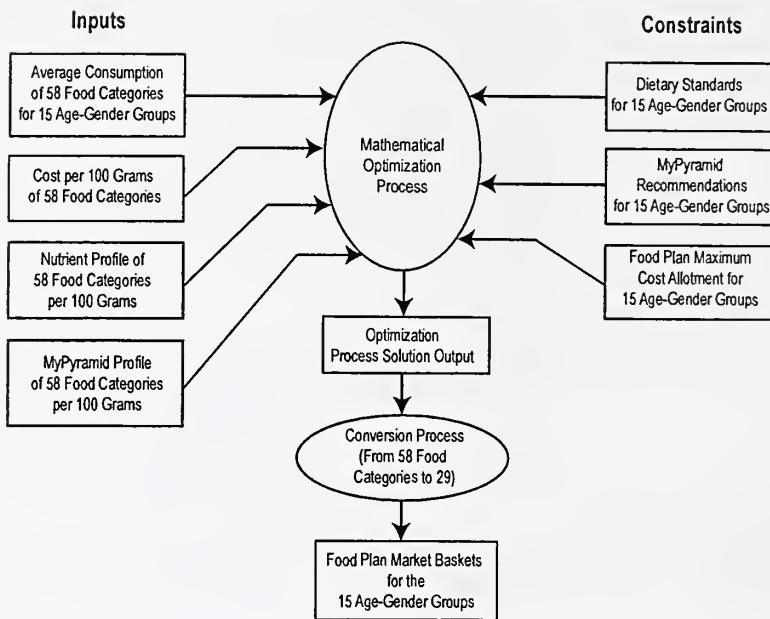
Development of the Low-Cost, Moderate-Cost, and Liberal Food Plans includes three major steps. First is the selection of a survey sample to use as the basis for each food plan at a particular cost level. Second is the establishment of dietary standards and a cost limit for the food plan. Third is the use of a computerized mathematical optimization model to develop the food plan. This model should be designed to identify food market baskets representing a diet as close as possible to actual food consumption patterns to meet the dietary standards and the cost limit desired.

An overview of the model used to update the market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans is depicted in figure 1. For each plan, CNPP calculated a revised market basket for 15 age-gender groups: Children ages 1, 2 to 3, 4 to 5, 6 to 8, and 9 to 11; females ages 12 to 13, 14 to 18, 19 to 50, 51 to 70, and 71 and over; and males ages 12 to 13, 14 to 18, 19 to 50, 51 to 70, and 71 and over.⁶ These age-gender groupings are different from those of the previous USDA Food Plans. Grouping in this way aligns more closely the age-gender groups with those of the Dietary Reference Intakes (DRIs). Individual market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans calculated for each age-gender group may be combined to form a respective market basket for the household.

The Low-Cost, Moderate-Cost, and Liberal Food Plans have historically reflected the consumption patterns and eating habits of people according to quartiles of food spending: the Low-Cost Plan corresponds to participants' food consumption in the second quartile (25th to 50th percentile) of food expenditure; the Moderate-Cost Plan, the third quartile (50th to 75th percentile) of food expenditure; and the Liberal Plan, the upper quartile

⁶ Nineteen-year-olds were assigned the respective market baskets of the 20- to 50-year-old age-gender groups because of similarity in nutritional needs.

Figure 1. Food Plan Model



(75th to 100th percentile) of food expenditure. Because the model inputs for the three food plans should reflect the consumption patterns of people in these quartiles, CNPP assigned each individual to one of these quartiles based on their food expenditure relative to the expenditure of others in the same age-gender group and calculated the inputs only for people in the quartile. We will refer to each of these 15 age-gender groups and the associated three expenditure quartiles as food plan groups; there are a total of 45 food plan groups.

For modeling purposes, CNPP assigned each of the 4,152 foods reported in NHANES 2001-2002 to one of 58 food categories. Table 1 presents these 58 food categories and some example foods in each. Foods were assigned to food categories based on similarity of nutrient content, food costs, number of cup or ounce equivalents in MyPyramid, and use in meals. (See appendix 1 for Food Category Database Documentation.)

To calculate a Low-Cost, Moderate-Cost, and Liberal Food Plan market basket for each age-gender group, CNPP estimated 45 mathematical optimization models for each of the food plan groups. For each food plan group, the model selected the optimal food plan that met the dietary standards and cost constraints, with as little change as possible from reported food consumption. Each model consisted of four sets of data inputs related to the 58 food categories, subject to three sets of constraints. The food category inputs were average consumption, average cost per 100 grams, average nutrient profile per 100 grams, and average MyPyramid ounce or cup equivalents profile per 100 grams. The cost inputs were calculated by using the foods consumed by people in each food plan group and the Food Price Database created by CNPP.

Table 1. Food categories and examples of foods in each category, Low-Cost, Moderate-Cost, and Liberal Food Plans, 2007

Food category	Examples of foods
Grains	
Breads, yeast and quick—whole grain (n = 38)	Whole wheat, multigrain, or pumpernickel breads, rolls, bagels, scones, English muffins, biscuits, tortillas, and pancakes—all with 50% or more of ounce equivalents ¹ from whole grain
Breads, yeast and quick—non-whole grain (n = 271)	White, French, potato, bran, or rye breads and rolls; muffins, English muffins, bagels, waffles, corn tortillas, taco shells, cornbread, and pancakes—all with less than 50% of ounce equivalents from whole grain
Breakfast cereal—whole grain, regular calories ² (n = 74)	Cooked cereals (e.g., oatmeal and bulgur) with sugars, fat, and whole milk or 2% milk added; sweetened ready-to-eat cereals (e.g., frosted wheats and granola)—all with 50% or more of ounce equivalents from whole grain
Breakfast cereal—whole grain, low calories ² (n = 54)	Cooked cereals (e.g., oatmeal, bulgur, and buckwheat groats) without added sugars or fat; nonsweetened ready-to-eat cereals (e.g., shredded wheat and mueslix)—all with 50% or more of ounce equivalents from whole grain
Breakfast cereal—non-whole grain (n = 214)	Cooked cereal (e.g., cream of wheat, grits, and oat bran); sweetened or nonsweetened ready-to-eat cereals (e.g., frosted cornflakes and puffed rice)—all with less than 50% of ounce equivalents from whole grain
Rice and pasta—whole grain (n = 15)	Brown rice, wild rice, whole wheat pasta (e.g., macaroni, spaghetti, and noodles)—all with 50% or more of ounce equivalents from whole grain
Rice and pasta—non-whole grain (n = 48)	Long or short white rice, sweet rice, rice noodles and pasta (e.g., macaroni, spaghetti, and noodles)—all with less than 50% of ounce equivalents from whole grain
Cakes, pies, and other sweet bakery products—whole grain (n = 20)	Oatmeal cookies, granola cookies, whole wheat doughnuts, granola bars, and graham crackers—all with 50% or more of ounce equivalents from whole grain
Cakes, pies, and other sweet bakery products—non-whole grain (n = 425)	Pies, cookies, pastries, doughnuts, shortbread; all cakes (e.g., white, yellow, shortcake, sponge, pound, and angel food); croissants; and sweet rolls—all with less than 50% of ounce equivalents from whole grain
Grain-based snacks—whole grain (n = 30)	Popcorn, salty snacks, crackers, multigrain pretzels, and puffed wheat cakes—all with 50% or more of ounce equivalents from whole grain
Grain-based snacks—non-whole grain (n = 58)	Crackers (e.g., soda, oyster, cheese, and rice); hard or soft pretzels; and salty snacks (e.g., tortilla chips)—all with less than 50% of ounce equivalents from whole grain
Grain mixtures—regular fat (n = 229)	Foods such as tacos, burritos, enchiladas, pizzas, egg rolls, and pasta and rice with meat where grain is major ingredient and containing 6% or more fat by weight
Grain mixtures—lowfat (n = 140)	Foods such as rice and pasta with vegetables and/or beans, noodle or rice soups with vegetables and/or meat, and garden rolls where grain is major ingredient and containing less than 6% fat by weight
Vegetables and fruits	
Potato products—regular fat (n = 34)	French-fried potatoes, potato chips, hash browns, potato puffs, potato patty; and potato salads and mashed potatoes with added fat, eggs, or cheese
Potato products—lowfat (n = 60)	Boiled, baked, scalloped, mashed, and stuffed potatoes; and potato salad, German style
Dark-green vegetables—added fat (n = 34)	All dark-green vegetables such as broccoli, spinach, chard, collard greens, mustard greens, and kale—with or without fat added
Dark-green vegetables—no added fat (n = 21)	All orange vegetables such as carrots, pumpkin, winter squash, and sweet potatoes—with or without fat added
Orange vegetables—added fat (n = 28)	Tomato, tomato sauce, tomato puree, tomato paste, tomato soup, and tomato juice—with or without fat added
Orange vegetables—no added fat (n = 28)	All other vegetables such as green beans, beets, cabbage, cauliflower, corn, eggplant, green peas, iceberg lettuce, bell pepper, snow peas, turnip, and Brussels sprouts—with or without fat added
Tomatoes—added fat (n = 32)	Foods such as stuffed vegetables, creamed peas and carrots, batter-dipped fried vegetables, and vegetable stir-fry where vegetables are the primary ingredient—with or without fat added
Tomatoes—no added fat (n = 37)	
Other vegetables—added fat (n = 136)	
Other vegetables—no added fat (n = 163)	
Mixed vegetables—added fat (n = 101)	
Mixed vegetables—no added fat (n = 43)	

¹The following each counts as 1 ounce equivalent (1 serving) of grains: 1/2 cup cooked rice, pasta, or cooked cereal; 1 ounce dry pasta or rice; 1 slice of bread; 1 small muffin (1 oz); 1 cup ready-to-eat cereal flakes.

²In this context, “calories” refers to total calories from discretionary solid fat and added sugars in the product. Discretionary solid fat in cereals is the fat that is solid at room temperature and is added to the cereals during processing or at the table.

Note: n refers to number of food codes in the food category.

Table 1. Food categories and examples of foods in each category, Low-Cost, Moderate-Cost, and Liberal Food Plans, 2007 (cont'd)

Food category	Examples of foods
Citrus fruits, melons, and berries (n = 62)	Oranges, grapefruits, limes, lemons, and tangelos; melons (e.g., watermelon, cantaloupe, and honeydew); berries (e.g., strawberries, blueberries, cranberries, raspberries, and blackberries)
Citrus fruit, melon, and berry juices (n = 38)	100% fruit juices made from citrus fruits, melons, and berries
Fruits other than citrus fruits, melons, and berries (n = 185)	Fruits such as bananas, apples, cherries, peaches, pears, grapes, plums, papayas, and apricots
Fruit juices other than citrus, melon, and berry (n = 70)	100% fruit juices made from fruits other than citrus fruits, melons, and berries
Milk products	
Milk and milk-based foods—regular fat (n = 56)	All fluid, evaporated, condensed, and dry whole milk; regular yogurt; all fluid creams; cream substitutes; cream cheese; and dips
Milk and milk-based foods—lower fat (n = 38)	All fluid, evaporated, and dry reduced-fat and skim milks; buttermilk; and lowfat or nonfat yogurts
Cheese (n = 98)	Natural, processed, and imitation cheeses; cottage cheese; cheese spreads; cheese dips; and cheese soups
Milk-based drinks and desserts—regular fat (n = 125)	Milk-based drinks (e.g., malted milk, hot chocolate, eggnogs, cocoa, infant formulas, and meal-replacement drinks) with fat equivalent to that of whole milk; dairy desserts (e.g., ice cream, frozen yogurt, ice milk, custard, and puddings) having more than 6% fat by weight
Milk-based drinks and desserts—lower fat (n = 136)	Milk-based drinks made with reduced-fat or skim milk and dairy desserts having 6% or less fat by weight
Meat and beans	
Red meats—regular discretionary solid fat, ³ regular cost ⁴ (n = 59)	Beef (e.g., battered and fried steak, barbecued short ribs, and pot roast), pork (e.g., fresh ham, loin, and spareribs), lamb (e.g., roast), game meats, and jerky—all with more than the median amount of discretionary solid fat
Red meats—regular discretionary solid fat, low cost ⁴ (n = 61)	Pork (e.g., skin, ground, chop, roast, cutlet, and bacon), beef (e.g., brisket, short ribs, neck bones, regular ground beef, and corned beef), lamb (e.g., ground or chop), and organ meats—all with more than the median amount of discretionary solid fat
Red meats—low discretionary solid fat, regular cost (n = 62)	Lean beef (e.g., steak, veal, and oxtail), lean only pork (e.g., roast, steak, fresh ham, and loin), lamb (e.g., ribs and loin chop), and game meats—all with the median amount of discretionary solid fat or less
Red meats—low discretionary solid fat, low cost (n = 74)	Lean pork (e.g., lean spareribs and smoked or cured roast), lean only beef (e.g., brisket), lamb (e.g., shoulder chop), and game meats—all with the median amount of discretionary solid fat or less
Poultry—regular discretionary solid fat, regular cost (n = 50)	Coated and fried poultry (e.g., breast, leg, thigh, and drumstick) purchased without skin—all with more than the median amount of discretionary solid fat
Poultry—regular discretionary solid fat, low cost (n = 42)	Coated and fried dark meat (e.g., wing, thigh, and drumstick) purchased with skin; nuggets; and organ meats of chicken, turkey, and game birds purchased with skin—all with more than the median amount of discretionary solid fat
Poultry—low discretionary solid fat, regular cost (n = 54)	Roasted or broiled poultry (e.g., breast, thigh, and drumstick) purchased without skin—all with the median amount of discretionary solid fat or less
Poultry—low discretionary solid fat, low cost (n = 156)	Smoked or roasted white and dark meat mixture or dark meat (e.g., thigh and drumstick) purchased with skin (but skin not consumed); turkey and game birds purchased with skin (but skin not consumed); and canned chicken soups—all with the median amount of discretionary solid fat or less

³Discretionary solid fat in meats is the fat that is solid at room temperature and is the excess fat from (1) the meat and beans group (including meats, poultry, fish, eggs, nuts, and seeds) beyond amounts that would be consumed if only the lowest fat forms were eaten and (2) solid fats added to these foods in preparation or at the table.

⁴The top 66.66 percent of foods were placed in the regular-cost category; the bottom 33.33 percent of foods, in terms of cost, were placed in the lowest cost category.

Note: n refers to number of food codes in the food category.

Table 1. Food categories and examples of foods in each category, Low-Cost, Moderate-Cost, and Liberal Food Plans, 2007 (cont'd)

Food category	Examples of foods
Fish—regular discretionary solid fat, regular cost (n = 60)	Fish, pan-fried or baked with solid fat (e.g., fresh tuna, swordfish, trout, salmon, ocean perch, and porgy) and battered and fried shellfish (e.g., scallops, oyster, shrimp, and crab)—all with more than the median amount of discretionary solid fat
Fish—regular discretionary solid fat, low cost (n = 54)	Fish sticks or other fried and battered fish (e.g., mullet, smelt, haddock, herring, and catfish)—all with more than the median amount of discretionary solid fat
Fish—low discretionary solid fat, regular cost (n = 37)	Broiled, steamed, or smoked fresh fish (e.g., tuna, salmon) and fresh shellfish (e.g., crab and clams)—all with the median amount of discretionary solid fat or less
Fish—low discretionary solid fat, low cost (n = 54)	Canned fish (e.g., tuna, sardines, and herring), canned shellfish (e.g., shrimp), and canned seafood-based soups and chowders—all with the median amount of discretionary solid fat or less
Lunch meats, sausages, and bacon—regular fat (n = 55)	Sausages, salami, frankfurters, bologna, sliced ham, bacon, and pastrami
Lunch meats, sausages, and bacon—lowfat (n = 41)	Sausages, salami, frankfurters, bologna, sliced ham, bacon, and pastrami containing 25% less fat than regular fat form
Eggs and egg mixtures (n = 69)	Fresh, frozen, and dried eggs; egg substitutes; meringues; and egg mixtures
Meat, poultry, and fish mixtures—regular discretionary solid fat (n = 345)	Meat, poultry, and fish with grains or vegetables with more than the median amount of discretionary solid fat
Meat, poultry, and fish mixtures—low discretionary solid fat (n = 355)	Meat, poultry, and fish with grains or vegetables with the median amount of discretionary solid fat or less
Dry beans, peas, lentil dishes, and mixtures (n = 113)	Black, red, pinto, lima, white, mung, and kidney beans and all types of peas—all with or without other foods; soybean products (e.g., miso, tofu, and soybean-based meat substitutes)
Nuts and seeds (n = 74)	Nuts, peanut butter and other nut butters, nut mixtures, carob, and seeds (e.g., sunflower, sesame, and pumpkin)
Other foods	
Fats, oils, salad dressings, sauces, and condiments (n = 188)	Butter, margarine, vegetable oils (e.g., corn, olive, and sunflower), butter blends, salad oils, lard, shortenings, all salad dressings, mayonnaise, pickles, relishes, salsa, soy sauce, catsup, tomato paste, and gravies and sauces
Coffee and tea (n = 81)	Instant, ground, and fluid coffees and teas with or without caffeine and with or without sugar or sweeteners
Fruit drinks, soft drinks, and ades—regular calorie (n = 89)	Fruit drinks, cola- and pepper-type soft drinks, ginger ale, root beer, fruit punches, ades (e.g., lemonades and limeades), and other sodas containing sugar
Fruit drinks, soft drinks, and ades—low calorie (n = 35)	Sugar-free or low-sugar drinks such as cola- and pepper-type soft drinks, ginger ale, root beer, fruit-flavored drinks, fruit punches, ades, and other sodas
Sugars and sweets (n = 215)	All types of sugars, sweeteners, and syrups (e.g., honey, jams, jellies, marmalades, preserves, icings, gelatin desserts, marshmallow, and fudge); all types of candies and chocolates; and chewing gum

Note: n refers to number of food codes in the food category.

The average nutrient profile per 100 grams and the average MyPyramid ounce or cup equivalents profile per 100 grams were calculated by using the foods consumed by all individuals in the plan and the MyPyramid cup and ounce equivalence database provided by USDA's Agricultural Research Service. The constraints were dietary standards, MyPyramid food consumption recommendations, and costs of the food plan market baskets (corresponding to the period of food consumption data, 2001-2002).

Similar to the methods of the previous food plans, as well as the recently revised Thrifty Food Plan, and consistent with research on household discard of edible and spoiled food (USDA, 1983a; USDA, 1983b), CNPP also added an allowance to both reported intake for each of the 58 food categories and the dietary constraints in the model for each food plan to account for food waste. Household discard of edible food could result from plate waste or spoilage. The allowances factored into each food plan to account for waste were as follows: 10 percent for the Low-Cost Food Plan, 20 percent for the Moderate-Cost Food Plan, and 30 percent for the Liberal Food Plan (USDA, 1983a; USDA, 1983b). These percentage factors to account for food waste, while dated, are the only ones available that are applicable to households with varying food expenditures.

Model Inputs

Average Consumption of Each of the Food Categories

To create acceptable market baskets, the optimization model minimizes deviations from the food consumption habits of individuals in each food plan group. That is, the final market baskets are as close as possible to people's original consumption habits, while still meeting dietary and cost constraints. To obtain acceptable market baskets, CNPP determined and entered the average consumption patterns of each of the 15 age-gender groups for the 58 food categories into each model for the Low-Cost, Moderate-Cost, and Liberal Food Plans. For example, the average consumption pattern of a child age 9-11 in the third quartile of food expenditure was entered into the model when the market basket was estimated for the Moderate-Cost Food Plan for a child age 9-11.

Although the revised food plans incorporate average consumption, they do deviate from average consumption to satisfy the dietary standards of each plan. This deviation occurs because average consumption levels of many foods—especially fruits and vegetables—is far below recommended consumption levels; whereas, consumption of some other foods or food components—fats, added sugars, and sodium—is above recommendations. Few Americans have a good diet as determined by the Healthy Eating Index (Basiotis et al., 2002).

Average Price of the Food Categories

Each of the 4,152 foods in the Food Price Database was assigned to one of the 58 food categories. For each of the three food plans, the weighted average price per 100 grams of each of these food categories was then determined based on the average consumption by all people in the age-gender group within the corresponding expenditure group. For example, the food category “fruits other than citrus fruits, melons, and berries” includes apples, apricots, bananas, and cherries. The average price per 100 grams of food in this category was based on the average price of these individual food items weighted by their consumption share. Apples and bananas received a greater weight proportionately because of more frequent consumption. The average price of the 58 food categories was calculated for each age-gender group in the second, third, and upper food-spending quartiles. The prices for each food category differed among the food plan groups because consumption of food by individuals in each varied. For instance, the average price of the “fruits other than citrus fruits, melons, and berries” was estimated for a female age 20 to 50 in the Moderate-Cost Food Plan by using the consumption patterns of 20- to 50-year old females in the third quartile of food spending.

Nutrient Profile and MyPyramid Equivalents Profile of Each of the Food Categories

The 2001-2002 NHANES contains information about the nutrient content (including food energy, vitamins, minerals, and other food components, such as cholesterol and dietary fiber) of each of the foods that participants reported consuming. Using this database, for each food plan, CNPP calculated the weighted average nutrient content of each of the 58 food categories per 100 grams. For example, the “poultry, low-discretionary solid fat and low-cost group” consists of foods, such as roasted chicken drumstick without skin, boiled chicken leg, and canned chicken soup. The average nutrient profile of this food category was based on the average consumption of each food item by all people in the respective spending quartiles. The average consumption by all people was used because sample sizes for some age-gender groups were too small to produce reliable estimates, especially for infrequently consumed foods.

For the purposes of nutrient analysis, CNPP assumed that foods made with a recipe that included table salt, such as eggs and vegetable casseroles, were prepared without added salt. This assumption resulted in a reduced estimate of the sodium content of foods. However, the salt content of ready-to-eat or ready-to-heat foods, such as spaghetti sauce, canned goods, and baked goods, was held at the level given in the FNDDS, even if these foods were used in a recipe (e.g., spaghetti sauce used in a casserole). Sodium content as it occurs naturally in foods, such as seafood and milk, was not altered.

The MyPyramid ounce or cup equivalents profile of each of the 58 food categories was also an input into the model for each food plan: the average weighted number of equivalents of grains (whole and non-whole), vegetables (dark green, orange, legumes, starchy, and other vegetables), fruits (whole and 100 percent juice), milk, and meat and

beans (meat, poultry, fish, dry beans, eggs, and nuts). Many food categories yielded equivalents for only one MyPyramid food group; for example, cheese contributed equivalents to the milk group only. Other food categories contributed equivalents to more than one MyPyramid food group; for example, mixed grains may contain equivalents of grains, vegetables, milk, and meat and beans. Again, the average consumption by all people in the respective spending quartiles, instead of the average consumption by people in each age-gender group, was used because sample sizes for some age-gender groups were too small.

Model Constraints⁷

Dietary Standards

Before the dietary standards were set for the market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans for each of the 15 age-gender groups, the appropriate caloric levels for these market baskets needed to be determined. For the recent update of the Thrifty Food Plan (Carlson et al., 2007), the median weight/height of each age-gender group and a low active physical activity level (as defined by the Institute of Medicine, Food and Nutrition Board, 2005) was used to set caloric levels.⁸ Essentially, for each age-gender group (the same groups as used in this update of the Low-Cost, Moderate-Cost, and Liberal Food Plans), these three variables were entered into an equation developed by the Institute of Medicine (Institute of Medicine, Food and Nutrition Board, 2005). The yield from the equation was a caloric level reflecting the energy requirement of a person at the median weight, median height, and median age (for the group) at a low active physical activity level.

Because age-gender groups do not vary across the four USDA food plans—these groupings were determined by nutrient requirements, not cost—the caloric levels of the market baskets of the Thrifty Food Plan were applied to the market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans for each respective age-gender group. Although the caloric levels of the Thrifty Plan were set based on a lower income sample, using the same caloric level for each age-gender group across the four USDA food plans ensures that the plans vary only by food costs, which is the main intent of the food plans. Additionally, with this approach, the caloric levels of the updated market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans are similar to the caloric levels of the previous respective market baskets.

⁷ Constraint is a technical term in mathematical optimization modeling that defines the area where a solution is possible. The term does not mean that dietary standards are limiting or negative.

⁸The low active category in the Institute of Medicine 2005 classification of activity levels corresponds to the moderate activity level referred to in the 2005 Dietary Guidelines for Americans. This is 30 minutes of moderate-intensity activity per day.

In the previous three food plans, caloric levels were set at the 1989 Recommended Energy Allowances, which were based on reference people of median height and weight, and having a moderate level of physical activity. However, the methodology used to determine caloric need has changed, the population has gained body weight, and the definition of healthful weight has changed since the previous food plans were constructed.

The dietary standards that the market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans had to satisfy were drawn from three main sources: (1) the 1997-2005 Dietary Reference Intakes, which include Recommended Dietary Allowances (RDAs), Adequate Intakes (AIs), and Acceptable Macronutrient Distribution Ranges (AMDRs); (2) the 2005 Dietary Guidelines for Americans; and (3) the 2005 MyPyramid Food Guidance System. Tables 2a-c show major differences in dietary standards between the old (2003) and revised (2007) plans.

The 1997-2005 RDAs for various age-gender groups are the level of intake of essential nutrients considered adequate to meet the nutrient needs of practically all (97 to 98 percent) healthy Americans in the group (Institute of Medicine, Food and Nutrition Board, 1997, 1998, 2000a, 2000b, 2002, 2004, 2005). The 1997-2005 AIs for various age-gender groups are average daily intake levels that are assumed to be adequate for health. These intake levels are based on observed or experimentally determined approximations or estimates of nutrient intakes by a group of apparently healthy people and are used when RDAs cannot be determined (Institute of Medicine, Food and Nutrition Board, 1997, 1998, 2000a, 2000b, 2002, 2004, 2005). The 1997-2005 AMDRs for various age-gender groups are a range of intakes for a particular energy source that is associated with a reduced risk of chronic disease while providing adequate intakes of essential nutrients (Institute of Medicine, Food and Nutrition Board, 1997, 1998, 2000a, 2000b, 2002, 2004, 2005). The AMDRs are expressed as a percentage of total energy intake.

For the revised food plans, the market baskets for each age-gender group had to meet 100 percent or more of the group's 1997-2005 RDAs or AIs for vitamin A, vitamin C, vitamin B₆, vitamin B₁₂, thiamin, riboflavin, niacin, calcium, phosphorus, magnesium, iron, folate, zinc, copper, and fiber. The market baskets for each age-gender group also had to fall below the Tolerable Upper Intake Level (UL) for nutrients where such a limit was set (vitamin A, vitamin C, vitamin B₆, vitamin E, calcium, phosphorus, iron, folate, zinc, and copper). A UL is the highest amount of a nutrient that can be safely eaten on a continual basis and not cause an adverse effect for most healthy people.

A solution could not be obtained for most market baskets to meet the RDA for vitamin E or the AI for potassium without extreme variation from average consumption, such as obtaining most meat and bean recommendations in the form of nuts. Hence, these dietary constraints were relaxed in the models. This also had to be done for the recently updated Thrifty Food Plan. For vitamin E, the market baskets of the three food plans for children met 95 to 100 percent of their vitamin E RDA; those for teenage males, 90 to 100 percent; those for teenage females, 63 to 85 percent; those for adult males, 70 to 83 percent; and those for adult females, 60 to 76 percent of their vitamin E RDA.

Table 2a. Dietary standards of the previous and revised market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans

Constraint	Previous market baskets	Revised market baskets
RDAs/AIs/AMDRs¹ for each age-gender group	1989 RDA	1997-2005 RDA/AI/AMDR
Vitamins A, C, E, B ₆ , and B ₁₂ , thiamin, riboflavin, niacin, calcium, phosphorus, magnesium, iron, folate, and zinc	100% RDA	100% RDA or AI and less than UL where applicable for all except vitamin E (63% or more of RDA for all three food plans)
Copper and potassium	Not applicable	100% RDA or AI and less than UL where applicable except for potassium (70% or more of AI for all three food plans)
Fiber	No less than 100% of average consumption	100% AI (14 gm /1,000 Kcal)
Linoleic acid	Not applicable	AMDR: 5-10% of total calories
Alpha-linolenic acid	Not applicable	AMDR: 0.6-1.2% of total calories
Protein	100% RDA	AMDR: 5-20% of total calories for children ages 1-3; 10-30% of total calories for children ages 4-18; 10-35% of total calories for adults
Carbohydrate	55% or more of total calories/day	AMDR: 45-65% of total calories
Total fat	30% or less of total calories for adults and children ages 5 and older; at average consumption for children ages 2 to 4; unrestricted for children age 1	AMDR: 30-40% of total calories for children ages 1-3; 25-35% of total calories for children ages 4-18; 20-35% of total calories for adults
Dietary standards	1995	2005
Saturated fat	Less than 10% of total calories for adults and children ages 5 and older; at average consumption for children ages 2 to 4; unrestricted for children age 1	Less than 10% of total calories
Sodium	No more than 100% of average consumption; unrestricted for children age 1	Less than or equal to median consumption
Cholesterol	300 mg or less/day; unrestricted for children age 1	300 mg or less/day
Pyramid	Food Guide Pyramid	
Grain group	Minimum of 6; maximum of 11 servings/day ²	100% of ounce equivalents in assigned food pattern, based on calorie needs (table 2b)
Whole grain	Not applicable	At least 50% of total grains
Vegetable group	Minimum of 3; maximum of 5 servings/day ²	100% of cups in assigned food pattern, based on calorie needs (table 2b)
Vegetable subgroups	Not applicable	100% of cups in assigned food pattern, for dark-green, orange, legumes, starchy, and other vegetables, based on calorie needs
Fruit group	Minimum of 2; maximum of 4 servings/day ²	100% of cups in assigned food pattern, based on calorie needs (table 2b)
Nonjuice fruit	Not applicable	At least 50% of total fruit
Milk group	Minimum of 2; maximum of 3 servings/day ²	2 cups for children ages 1-8; 3 cups for children ages 9 and older and adults
Meat and beans group	Minimum of 2; maximum of 3 (5 to 7 ounces) servings/day ¹	100% of ounce equivalents in assigned food pattern, based on calorie needs (table 2b)
Oils	Not applicable	100% of grams in assigned food pattern, based on calorie needs (table 2b)

¹RDAs = Recommended Dietary Allowances, AIs = Adequate Intakes, and AMDRs = Acceptable Macronutrient Distribution Ranges.

²Minimum and maximum servings varied by age-gender group. Maximum servings were specified to ensure that the minimum number of servings from all Food Guide Pyramid food groups was included in the TFP market basket before the maximum number of servings of any one of the food groups was exceeded. Serving sizes for children through 5 years were modified by reducing the serving size by one-third, except for servings of milk products.

Table 2b. MyPyramid food group standards for revised market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans

Calorie level	Daily amount of food from each group											
	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200
Food group												
Fruits	1 c ¹	1 c	1.5 c	1.5 c	1.5 c	2 c	2 c	2 c	2 c	2.5 c	2.5 c	2.5 c
Vegetables	1 c	1.5 c	1.5 c	2 c	2.5 c	2.5 c	3 c	3 c	3.5 c	3.5 c	4 c	4 c
Grains	3 oz ¹	4 oz	5 oz	5 oz	6 oz	6 oz	7 oz	8 oz	9 oz	10 oz	10 oz	10 oz
Meat and beans	2 oz	3 oz	4 oz	5 oz	5 oz	5.5 oz	6 oz	6.5 oz	6.5 oz	7 oz	7 oz	7 oz
Milk	2 c	2 c	2 c	3 c	3 c	3 c	3 c	3 c	3 c	3 c	3 c	3 c
Oils	15 g ¹	17 g	17 g	22 g	24 g	27 g	29 g	31 g	34 g	36 g	44 g	51g

¹ c = cups, oz = ounce equivalents, g = grams.

Note: Recommendations for fruit, vegetable, and grain groups include food subgroup (e.g., whole fruit, dark-green vegetable, and whole grain) recommendations (see table 2a).

Table 2c. Assignment of food pattern for age-gender group, based on median weight and height, NHANES 2001-2002

Age-gender	Assigned calorie level
1 year, M/F	1,000
2-3 years, M/F	1,200
4-5 years, M/F	1,400
6-8 years, M/F	1,600 ¹
9-11 years, M/F	2,000
12-13 years, F	2,200
12-13 years, M	2,400
14-18 years, F	2,200
14-18 years, M	3,000
19-50 years, F	2,200
19-50 years, M	2,800
51-70 years, F	2,200
51-70 years, M	2,600
71+ years, F	1,800
71+ years, M	2,200

M = Male; F = Female.

¹The 6- to 8-year-olds need only 2 cups of milk and 2.5 oz equivalent of whole grains even though they are assigned the 1,600 calorie pattern.

For potassium, the market baskets of the three food plans for children met 70 to 90 percent of their potassium AI; those for teenage males, 96 to 100 percent; those for teenage females, 83 to 88 percent; those for adult males, 88 to 98 percent; and those for adult females, 78 to 87 percent of their potassium AI. In general, higher cost food plans did not contain significantly more vitamin E or potassium. Levels of vitamin E and potassium tended to be uniform across an age-gender group's market baskets for all three food plans.

Regarding vitamin E, typical intakes as measured in food consumption surveys are far less than what is required by the new RDA standards. Mean usual intake for adult females is 6.3 mg alpha-tocopherol (AT); for adult males, 8.2 mg AT (Moshfegh, Goldman, & Cleveland, 2005). Meeting the new RDA of 15 mg AT for adults, especially at lower calorie intakes, would have required substantial changes from typical food intake patterns and would also require the regular intake of foods not commonly consumed, such as sunflower and safflower oils. Changing typical food intake patterns was neither realistic nor practical. As for potassium, the same problem existed. To meet the potassium AI, substantial changes from typical food intake patterns would be required. Again, CNPP did not consider this a realistic or practical alternative. Hence, CNPP relaxed these dietary constraints and developed market baskets for the Low-Cost, Moderate-Cost, and Liberal Food Plans that were as near as possible to the recommendations for vitamin E and potassium without extreme deviations from typical consumption patterns. While not always reaching the vitamin E RDA or potassium AI recommendations, vitamin E and potassium levels in the market baskets for all age-gender groups are higher than average consumption of participants in NHANES 2001-2002 for the respective age-gender groups in expenditure quartiles. That is, the vitamin E and potassium levels in the Low-Cost Food Plan market basket for a child age 9 to 11 are higher than the average levels that children 9 to 11 are consuming in the second from bottom food spending quartile. This same pattern held for all age-gender groups in the three food spending quartiles of interest.

The market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans for each age-gender group also had to fall within the AMDR for linoleic acid, alpha-linolenic acid, protein, carbohydrate, and total fat in order to be consistent with dietary standards. For example, the market baskets for adults derived 20 to 35 percent of total calories from total fat; for children ages 4 to 8, 25 to 35 percent; and for children ages 1 to 3, 30 to 40 percent.

The 2005 Dietary Guidelines for Americans (U.S. Department of Health and Human Services [DHHS], & U.S. Department of Agriculture [USDA], 2005) provide science-based advice to promote health and to reduce risk for major chronic diseases through diet and physical activity. The Guidelines recommend that all healthy people ages 2 years and over consume less than 10 percent of calories per day from saturated fat and less than 2,300 mg per day of sodium. For cholesterol, the Guidelines recommend that all healthy people ages 2 years and over consume 300 mg or less per day. Although these Guidelines for saturated fat, sodium, and cholesterol apply to healthy people ages 2 years and over, CNPP also applied them to 1-year-olds, because this age group was assigned to the 1,000

calorie food pattern and this pattern uses these saturated fat, sodium, and cholesterol guidelines.

With the exception of sodium, these recommendations were met in the revised market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans. Although all foods prepared with a recipe were assumed to be done so without added salt, the new food plans did not meet the sodium guideline for any of the baskets. Hence, similar to the recently updated Thrifty Food Plan, age-gender groups' market baskets were limited to no more than the median sodium consumption by the group.

A similar situation existed with the previous market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans: the sodium guideline at the time could not be met in the market baskets, so the standard was set approximately to no more than mean sodium consumption for each age-gender group. Because the median amount of sodium consumed is always less than the mean amount of sodium consumed by each age-gender group, the revised food plans improve upon the 2003 food plans in this respect. Sodium levels in the market baskets of the food plans ranged from 1,856 mg for 1-year-olds to 4,404 mg for adult males.

About 75 percent of sodium consumed comes from food-processing methods (DHHS & USDA, 2005). It was thus practically impossible to develop market baskets that met the sodium recommendation. To do so would require substantial changes in food-manufacturing practices or require many foods, including bread and pasta, to be made from scratch without added salt. In addition, the sodium content of diets is closely tied to energy intake, making it more difficult to achieve sodium intakes below the recommendation at higher energy intakes. The Dietary Guidelines recognize this reality and therefore recommend selecting more fresh and less processed items, using less sodium-dense foods, and reducing salt in food preparation.

This revision of the market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans incorporates food intake recommendations of the MyPyramid Food Guidance System. MyPyramid translates recommendations from the Dietary Guidelines for Americans into the types and amounts of food people can eat to achieve a healthful diet. More important, MyPyramid specifies daily amounts from each of the major food groups (grain, vegetable, fruit, milk, and meat and beans) and oils that population groups need to eat to have a healthful diet. Although the MyPyramid system also sets limitations on the amount of discretionary calories allowed, setting direct limits on these calories was not necessary in this food plan update because overall calories, nutrients, foods, and oils were strictly controlled for in the analysis. Discretionary calories are the balance of calories remaining in a person's estimated energy allowance after accounting for the number of calories needed to meet recommended nutrient intakes through consumption of foods in lowfat or no-added-sugar forms.

Based on its estimated caloric need, each age-gender group was assigned to one of the 12 MyPyramid food intake patterns, which range from 1,000 to 3,200 calories. The market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans for each age-gender group had to meet the food group intake requirements for the five major food groups and for oils for the corresponding calorie level. In addition, food subgroup requirements were also included: at least 50 percent of the total amount from the grain group had to be whole grains, at least 50 percent of the amount from the fruit group had to be nonjuice fruit, and all vegetable subgroups had to be incorporated at levels that were specified in MyPyramid.

Cost and Other Constraints

A primary constraint satisfied by the revised market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans was that they should cost no more than the respective previous market baskets, adjusted for inflation. Accordingly, because 2001-2002 consumption data underlie the 2007 revision of the market baskets, for each age-gender group for all three food plans, CNPP limited the cost of each group's revised food plan market basket to equal the average real cost of its previous market basket for the 2001-2002 period. This constant real-cost constraint was used to examine how a person could achieve a nutritious diet based on current dietary standards. Historically, the Low-Cost Food Plan represents food expenditures in the second from bottom quartile of food spending; the Moderate-Cost Food Plan, food expenditures in the second from top quartile of food spending; and the Liberal Food Plan, food expenditures in the top quartile of food spending. Data analysis confirmed that the cost of the Low-Cost Food Plan in 2001-02 for each age-gender group fell within the second from bottom quartile of food spending in 2001-02 for each respective age-gender group. Similarly, the cost of the Moderate-Cost Food Plan fell within the second from the top quartile, while the cost of the Liberal Food Plan fell within the top quartile of food spending for each age-gender group.

In addition, efforts were made to consider ease of food preparation and convenience in the development of the market baskets. Foods, such as boxed macaroni and cheese, frozen fruits and vegetables, prepared sauces, ready-to-eat breads and cereals, canned soups, chicken parts, canned dry beans, boxed mashed potatoes, and stove-top meals, are included in the market baskets.

Based on data from NHANES 2001-2002, amounts of foods in the market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans for each age-gender group also were constrained to fall within a range of average consumption for each of the 58 food categories. This was done to prevent the model from selecting huge quantities of certain foods and to maintain a palatable diet. The lower bound was set slightly above zero for most food categories. The upper bounds varied by food category, depending on average consumption. Generally, the upper bounds were 3 to 10 times average consumption. Although this may seem high, average consumption was near zero for some food categories (e.g., whole grains). Thus, a tenfold increase did not result in an unreasonable level of intake. For the meat and beans food group, each of the subgroups (beef, pork, veal, lamb, and game; chicken, turkey, and game birds; etc.) was constrained within a narrower range of average consumption to ensure that no one subgroup dominated the pattern.

Mathematical Model

For the past 30 years, a computerized quadratic mathematical optimization programming model has been used in the development of the USDA food plans (appendix 2). For each age-gender group, the model selects the optimal food plan that meets the dietary standards and cost constraints, with as little change as possible from food consumption. The model for this revision of the Low-Cost, Moderate-Cost, and Liberal Food Plans was based on the model of the 2003 food plans. This revised model accommodates all 58 food categories, dietary constraints, and serving specifications of MyPyramid. The mathematical model for the 2007 food plans provides illustrative market baskets that can be developed into daily food plans that provide nutritionally adequate, healthful meals at three cost levels.

Food Plan Consumption Patterns

The mathematical optimization model produced 15 suggested consumption patterns (one for each age-gender group) for each of the three food plans (the Low-Cost, Moderate-Cost, and Liberal Plans). Each pattern contained quantities of each of the 58 food categories in as-consumed form. The 58 food categories in as-consumed form for each of the three food plans were then regrouped into 29 market basket groups in as-purchased form. The next section discusses these market basket groups in as-purchased form for the three food plans. Appendix 3 portrays the results in as-consumed form regrouped into USDA MyPyramid amounts consumed per day; the appendix shows that the suggested consumption patterns for all three food plans meet the daily food intake recommendations of the MyPyramid Food Guidance System.

It should be noted that because there are differing dietary standards as well as food preferences for each age-gender group (the reason each group's model was estimated separately), there is a degree of variability in the market basket food amounts from one age-gender group to another for all three food plans. This was also the case for the previous food plans as well as the recently updated Thrifty Food Plan. For example, DRI requirements increase substantially for children ages 9 to 11, compared with children ages 6 to 8. But unlike older individuals, the 9- to 11-year-olds have a stronger preference for fruit, compared with vegetables. The model, therefore, fulfills their greater nutrient requirement with fruit rather than vegetables. Hence, the two groups have different market baskets. This does not need to make the formation of household-level baskets more challenging because household members consume the same foods, but in different quantities. For example, every household member needs to consume fruit in nonjuice form, but children ages 9 to 11 will eat more fruit than is consumed by other household members. These children will also consume fewer vegetables than do other household members but still consume the recommended amount of vegetables. Future work will examine this variability in food amounts between age-gender groups in more detail.

Market Baskets or As-Purchased Form

The consolidation of categories, whereby similar foods were grouped and converted into market baskets or as-purchased (versus as-consumed) form, illustrates how households can purchase foods in the marketplace in order to obtain the suggested consumption patterns in the Low-Cost, Moderate-Cost, and Liberal Food Plans. The consolidation also provides better information for nutrition education needs. For example, CNPP combined “potato products, regular fat” and “potato products, lowfat” into one market basket group of potato products. Also, “citrus fruit, melon, and berry juices” and “fruit juices other than citrus, melon, and berry” were combined into one market basket group of fruit juices. The dietary standards were still maintained when the 58 food categories were collapsed into 29 market basket groups. Table 3 lists the 29 market basket groups in as-purchased form and lists examples of foods the groups contain.

The revised market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans consisting of the quantities in as-purchased form of the 29 market basket groups (in pounds per week) for each of the 15 age-gender groups are listed in table 4. For each of the three food plans, the expenditure shares of these 29 market basket groups for the 15 age-gender groups are listed in appendix 4.

Average Market Basket for Each Food Plan

To examine how the market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans differ from each other, CNPP calculated an average market basket for each plan. Average baskets were derived by weighting each age-gender group by its population size (according to the 2000 Census) and calculating a weighted mean for each food plan. Table 5 shows these average food plan market baskets (in pounds per week per person).⁹ The total amount of food in each average market basket increases, from that in the Low-Cost to the Moderate-Cost, to the Liberal Food Plan. The main reason for this is related to the higher food waste in the more expensive plans; the waste factor was 10 percent for the Low-Cost Plan, compared with 30 percent for the Liberal Plan. Although CNPP assumed proportionate food waste across food categories, such waste is likely disproportionate. However, given the absence of complete data on food waste by food category, CNPP assumed proportionate waste across food categories in order to maintain consistency with previous food plans.

Quantities of food for the grain, vegetable, fruit, milk, and meat and bean food groups generally increase across the food plans. Again, this is likely because of the higher food waste factors applied across the plans. There is a small decrease in total meat and beans from the Moderate-Cost to Liberal Food Plans. Quantities of food in the “other food” group (e.g., fats, oils, sweets, soups, and frozen entrees) are greatest in the Low-Cost Food Plan. Some of these other foods are inexpensive sources of calories, so after dietary standards are met, their amounts increase in the Low-Cost Plan. Differences for food subgroups reflect that as the plans increase in cost, more food choices are available.

⁹ Components of the three market baskets are discussed in terms of pounds; therefore, fluids such as milk and soft drinks are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

Table 3. Food categories and examples of foods in the market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans, 2007

Food category	Examples of foods
Grains	
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	Breads, rolls, muffins, biscuits, bagels, waffles, tortillas, pancakes, rice, pasta, and doughnuts—all made from whole grain; and buckwheat flour
Whole grain cereals (including hot cereal mixes)	Whole grain sweetened or nonsweetened ready-to-eat cereals (e.g., frosted and shredded wheat), whole grain cooked breakfast cereals (e.g., oatmeal, buckwheat groats, and bulgur), and whole grain babyfood cereal
Popcorn and other whole grain snacks	Popcorn; and whole grain crackers, cookies, salty snacks, pretzels, breakfast bars, and granola bars
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	Breads, bagels, biscuits, rolls, tortillas, muffins, and pancakes; cooked or ready-to-eat non-whole grain cereals; white rice and pasta; cakes and cake mixes, pies, cookies, and doughnuts; corn-based snacks, chips, pretzels, and crackers—all made from non-whole grain; and refined flour
Vegetables	
All potato products	Potatoes, instant mashed potatoes, potato puffs, French-fried potatoes, and potato chips
Dark-green vegetables	Spinach, broccoli, kale, chard, collards, endive, and mustard greens
Orange vegetables	Carrots, sweet potatoes, winter squash, pumpkin, and yams
Canned and dry beans, lentils, and peas (legumes)	Black, lima, mung, pinto, red, white, navy, pink, and kidney beans; cowpeas; chickpeas; lentils; soybeans; soy flour; and soybean-based meat substitutes
Other vegetables	Tomatoes and tomato products, sweet corn, onions, green peas, green beans, beets, Brussels sprouts, cabbage, cauliflower, celery, cucumber, eggplant, lettuce, mushrooms, okra, peppers, radishes, squash, and mixed vegetables
Fruits	
Whole fruits	Oranges, bananas, apples, grapes, watermelon, grapefruit, pears, peaches, cherries, strawberries, plums, apricots, cranberries, and blueberries
Fruit juices	All fresh, canned, and frozen fruit juices and nectars
Milk products	
Whole milk, yogurt, and cream	All fluid, evaporated, condensed, and dry whole milk; regular yogurt; all fluid creams; sour creams; cream cheeses; and cream soups
Lower fat and skim milk and lowfat yogurt	All fluid, evaporated, and dry reduced-fat and skim milks; reduced-fat, lowfat, and nonfat yogurt; fluid and dry buttermilk; and soy beverages
All cheese (including cheese soup and sauce)	Natural, processed, and imitation cheeses; cottage cheese; cheese spreads; cheese dips; and cheese soups
Milk drinks and milk desserts	Milk-based drinks (e.g., malted milk, milk shakes, and eggnogs); chocolate or cocoa-based drinks; infant formulas; nondairy dessert toppings; and milk-based desserts (e.g., ice cream, frozen yogurt, fudgesicles, sherbets, puddings, and custards)

Table 3. Food categories and examples of foods in the market baskets in the Low-Cost, Moderate-Cost, and Liberal Food Plans, 2007 (cont'd)

Food category	Examples of foods
Meat and beans	
Beef, pork, veal, lamb, and game	Beef, pork, veal, lamb, game meats, organ meats, meat-based soups, meat-based baby foods, cured meat products, and processed meat products
Chicken, turkey, and game birds	Chicken, turkey, duck, game birds, organ meats, chicken- or turkey-based soups, chicken- or turkey-based rolls, and canned chicken
Fish and fish products	Finfish, shellfish, fish chowders, and reconstructed seafoods
Bacon, sausages, and luncheon meats (including spreads)	Bacon, sausages, salami, frankfurters, bologna, pastrami, corned beef, turkey ham, and luncheon meats
Nuts, nut butters, and seeds	Peanuts, almonds, walnuts, cashews, brazilnuts, and pine nuts; pumpkin, sunflower, and sesame seeds; and peanut butter and other nut butters made from these nuts and seeds
Eggs and egg mixtures	Fresh, frozen, and dried eggs; egg substitutes; meringues; and egg dishes
Other foods	
Table fats, oils, and salad dressings	Butter, margarine, vegetable oils (e.g., corn, olive, palm, peanut, sunflower, safflower, and soybean), shortenings, butter blends, lard, salad oils, all types of salad dressings, and mayonnaise
Gravies, sauces, condiments, and spices	Gravies, soy sauce, barbecue sauce, duck sauce, white sauce, and other sauces; pickles, relishes, mustard, and olives; baking soda, vinegar, and baker's yeast; and all spices
Coffee and tea	Instant, ground, and fluid coffees and teas with or without caffeine and with or without sugars or sweeteners
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	All carbonated soft drinks; fruit-flavored punches, cocktails, and drinks; breakfast drinks or rice beverages; energy drinks; and ades (e.g., lemonade and limeade)
Sugars, sweets, and candies	All types of sugars, sweeteners, and syrups (e.g., honey, jams, jellies, marmalades, preserves, icings, gelatin desserts, marshmallow, and fudge); all types of candies and chocolates; and chewing gum
Soups (ready-to-serve and condensed)	All canned ready-to-serve or condensed soups (e.g., chicken noodle or cream of mushroom)
Soups (dry)	Instant and dry soup mixes and meat-flavored bouillons (e.g., chicken bouillon)
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	Frozen meals, pizza, fish sticks, entrees, and babyfood dinner meals and junior foods

Table 4a. Low-Cost Food Plan market baskets, quantities of food purchased for a week, by age-gender group, 2007

Food category	Children				
	1 year	2-3 years	4-5 years	6-8 years	9-11 years
Total pounds	18.49	19.41	23.23	25.24	34.87
<i>Pounds per week</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	0.76	0.90	1.30	0.39	1.87
Whole grain cereals (including hot cereal mixes)	0.11	0.16	0.38	0.23	0.21
Popcorn and other whole grain snacks	0.03	0.15	0.01	0.47	0.05
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	<u>0.39</u> 1.29	<u>0.63</u> 1.83	<u>0.79</u> 2.48	<u>1.42</u> 2.51	<u>0.77</u> 2.90
Vegetables					
All potato products	0.16	0.33	0.56	0.42	0.58
Dark-green vegetables	0.37	0.83	0.75	1.01	0.09
Orange vegetables	0.11	0.41	1.02	0.62	0.76
Canned and dry beans, lentils, and peas (legumes)	0.31	0.48	0.66	1.69	1.60
Other vegetables	<u>3.93</u> 4.88	<u>1.20</u> 3.25	<u>1.58</u> 4.57	<u>2.61</u> 6.35	<u>1.30</u> 4.33
Fruits					
Whole fruits	1.56	3.10	3.88	2.82	8.65
Fruit juices	<u>1.27</u> 2.82	<u>0.46</u> 3.56	<u>1.54</u> 5.42	<u>1.73</u> 4.55	<u>1.51</u> 10.16
Milk products					
Whole milk, yogurt, and cream	7.85	1.06	0.27	0.18	0.37
Lower fat and skim milk and lowfat yogurt	0.00	7.08	7.79	8.02	12.10
All cheese (including cheese soup and sauce)	0.01	0.03	0.02	0.00	0.04
Milk drinks and milk desserts	<u>0.00</u> 7.85	<u>0.00</u> 8.17	<u>0.03</u> 8.11	<u>0.00</u> 8.20	<u>0.06</u> 12.58
Meat and beans					
Beef, pork, veal, lamb, and game	0.32	0.30	0.31	2.09	0.53
Chicken, turkey, and game birds	0.37	0.49	0.50	0.44	0.49
Fish and fish products	0.18	0.83	0.54	0.34	0.55
Bacon, sausages, and luncheon meats (including spreads)	0.00	0.01	0.04	0.18	0.02
Nuts, nut butters, and seeds	0.09	0.14	0.41	0.18	0.79
Eggs and egg mixtures	<u>0.00</u> 0.97	<u>0.02</u> 1.79	<u>0.02</u> 1.81	<u>0.02</u> 3.25	<u>0.05</u> 2.43
Other foods					
Table fats, oils, and salad dressings	0.25	0.22	0.26	0.14	0.16
Gravies, sauces, condiments, and spices	0.20	0.23	0.32	0.20	0.37
Coffee and tea	0.00	0.00	0.00	0.00	0.00
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	0.21	0.18	0.20	0.02	0.62
Soups (ready-to-serve and condensed)	0.01	0.15	0.00	0.01	1.22
Soups (dry)	0.00	0.00	0.01	0.00	0.02
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	<u>0.02</u> 0.68	<u>0.00</u> 0.81	<u>0.00</u> 0.84	<u>0.00</u> 0.37	<u>0.02</u> 2.46

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

For children age 1, all milk and yogurt were assigned to the whole milk, yogurt, and cream category, because dietary guidance recommends consumption of primarily whole milk products for these children.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

**Table 4a. Low-Cost Food Plan market baskets, quantities of food purchased for a week, by age-gender group, 2007
(cont'd)**

Food category	Males				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
Total pounds	35.21	44.38	40.70	38.88	34.43
<i>Pounds per week</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	1.45	3.21	1.01	2.39	0.70
Whole grain cereals (including hot cereal mixes)	0.15	0.19	0.57	0.47	1.73
Popcorn and other whole grain snacks	0.97	0.05	0.38	0.05	0.03
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	<u>1.03</u> 3.60	<u>1.18</u> 4.64	<u>1.31</u> 3.27	<u>1.17</u> 4.08	<u>0.56</u> 3.02
Vegetables					
All potato products	1.20	2.00	2.26	1.36	1.99
Dark-green vegetables	0.62	0.53	1.01	1.15	0.87
Orange vegetables	0.43	0.55	0.91	0.90	0.71
Canned and dry beans, lentils, and peas (legumes)	1.87	1.63	1.83	1.26	1.47
Other vegetables	<u>1.58</u> 5.70	<u>3.48</u> 8.19	<u>3.39</u> 9.39	<u>3.29</u> 7.96	<u>2.27</u> 7.31
Fruits					
Whole fruits	3.93	6.27	6.04	6.98	4.75
Fruit juices	<u>2.21</u> 6.15	<u>1.37</u> 7.63	<u>1.68</u> 7.71	<u>1.83</u> 8.81	<u>1.72</u> 6.46
Milk products					
Whole milk, yogurt, and cream	1.31	1.37	1.15	0.49	0.65
Lower fat and skim milk and lowfat yogurt	10.18	9.12	9.26	10.99	11.46
All cheese (including cheese soup and sauce)	0.07	0.19	0.27	0.11	0.17
Milk drinks and milk desserts	<u>0.54</u> 12.10	<u>0.32</u> 11.01	<u>0.27</u> 10.96	<u>0.23</u> 11.82	<u>0.10</u> 12.38
Meat and beans					
Beef, pork, veal, lamb, and game	0.82	0.71	1.00	0.79	1.03
Chicken, turkey, and game birds	0.57	0.77	1.13	0.69	0.77
Fish and fish products	0.49	0.06	0.24	0.60	0.10
Bacon, sausages, and luncheon meats (including spreads)	0.12	0.13	0.19	0.09	0.06
Nuts, nut butters, and seeds	0.63	0.80	0.62	0.80	0.81
Eggs and egg mixtures	<u>0.07</u> 2.70	<u>0.12</u> 2.59	<u>0.18</u> 3.36	<u>0.12</u> 3.08	<u>0.17</u> 2.95
Other foods					
Table fats, oils, and salad dressings	0.24	0.56	0.58	0.37	0.43
Gravies, sauces, condiments, and spices	0.29	1.06	0.36	0.18	0.18
Coffee and tea	0.00	0.00	0.00	0.01	0.01
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	3.44	7.88	4.62	2.03	1.10
Sugars, sweets, and candies	0.19	0.57	0.22	0.12	0.12
Soups (ready-to-serve and condensed)	0.63	0.18	0.11	0.38	0.44
Soups (dry)	0.01	0.02	0.01	0.01	0.01
Frozen or refrigerated entrees (including pizza, fish sticks, frozen meals)	<u>0.16</u> 4.96	<u>0.04</u> 10.31	<u>0.08</u> 6.00	<u>0.03</u> 3.12	<u>0.02</u> 2.31

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

Table 4a. Low-Cost Food Plan market baskets, quantities of food purchased for a week, by age-gender group, 2007 (cont'd)

Food category	Females				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
Total pounds	33.51	35.79	38.13	34.77	29.33
<i>Pounds per week</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	2.24	2.22	1.71	2.52	1.50
Whole grain cereals (including hot cereal mixes)	0.17	0.09	0.22	0.09	0.26
Popcorn and other whole grain snacks	0.02	0.03	0.03	0.02	0.00
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	<u>0.94</u> 3.38	<u>1.16</u> 3.50	<u>0.89</u> 2.84	<u>0.54</u> 3.17	<u>0.72</u> 2.48
Vegetables					
All potato products	0.80	1.62	1.08	0.82	0.64
Dark-green vegetables	0.86	1.13	1.18	0.96	1.05
Orange vegetables	0.74	0.61	0.68	0.86	0.72
Canned and dry beans, lentils, and peas (legumes)	1.96	1.71	1.56	1.59	1.32
Other vegetables	<u>1.34</u> 5.70	<u>2.67</u> 7.75	<u>2.63</u> 7.13	<u>3.13</u> 7.35	<u>2.17</u> 5.90
Fruits					
Whole fruits	5.99	4.84	6.59	5.21	3.50
Fruit juices	<u>0.90</u> 6.90	<u>1.72</u> 6.56	<u>1.43</u> 8.02	<u>1.45</u> 6.66	<u>1.57</u> 5.07
Milk products					
Whole milk, yogurt, and cream	1.43	0.80	0.81	1.14	0.67
Lower fat and skim milk and lowfat yogurt	9.83	10.51	10.62	10.84	11.02
All cheese (including cheese soup and sauce)	0.11	0.10	0.18	0.05	0.03
Milk drinks and milk desserts	<u>0.37</u> 11.74	<u>0.19</u> 11.60	<u>0.25</u> 11.87	<u>0.21</u> 12.24	<u>0.10</u> 11.82
Meat and beans					
Beef, pork, veal, lamb, and game	0.46	0.69	0.86	0.70	0.78
Chicken, turkey, and game birds	0.74	0.68	1.03	1.00	0.83
Fish and fish products	0.54	0.36	0.44	0.42	0.04
Bacon, sausages, and luncheon meats (including spreads)	0.07	0.06	0.09	0.01	0.02
Nuts, nut butters, and seeds	0.70	0.53	0.76	0.73	0.79
Eggs and egg mixtures	<u>0.08</u> 2.59	<u>0.14</u> 2.45	<u>0.24</u> 3.42	<u>0.13</u> 2.98	<u>0.07</u> 2.53
Other foods					
Table fats, oils, and salad dressings	0.23	0.37	0.26	0.20	0.21
Gravies, sauces, condiments, and spices	0.12	0.16	0.15	0.09	0.08
Coffee and tea	0.00	0.00	0.00	0.00	0.01
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	2.57	3.10	4.13	1.69	0.87
Sugars, sweets, and candies	0.22	0.26	0.21	0.26	0.10
Soups (ready-to-serve and condensed)	0.00	0.01	0.06	0.12	0.24
Soups (dry)	0.04	0.01	0.02	0.00	0.01
Frozen or refrigerated entrees (including pizza, fish sticks, frozen meals)	<u>0.01</u> 3.21	<u>0.03</u> 3.94	<u>0.03</u> 4.86	<u>0.00</u> 2.36	<u>0.01</u> 1.53

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

Table 4b. Moderate-Cost Food Plan market baskets, quantities of food purchased for a week, by age-gender group, 2007

Food category	Children				
	1 year	2-3 years	4-5 years	6-8 years	9-11 years
Total pounds	23.88	21.01	25.85	26.92	37.95
<i>Pounds per week</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	1.05	0.48	0.96	0.72	0.77
Whole grain cereals (including hot cereal mixes)	0.05	0.23	0.14	0.21	0.06
Popcorn and other whole grain snacks	0.03	0.38	0.31	0.34	0.75
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	<u>0.36</u> 1.48	<u>0.82</u> 1.90	<u>1.23</u> 2.64	<u>1.50</u> 2.78	<u>1.33</u> 2.91
Vegetables					
All potato products	0.40	0.74	0.70	0.43	0.09
Dark-green vegetables	1.31	0.72	0.80	0.88	3.19
Orange vegetables	0.07	0.38	1.32	0.66	0.85
Canned and dry beans, lentils, and peas (legumes)	0.47	0.55	0.41	1.28	1.59
Other vegetables	<u>4.65</u> 6.90	<u>1.69</u> 4.09	<u>2.98</u> 6.21	<u>2.65</u> 5.91	<u>4.14</u> 9.86
Fruits					
Whole fruits	2.13	2.99	3.46	3.37	5.68
Fruit juices	<u>1.60</u> 3.73	<u>1.47</u> 4.46	<u>1.81</u> 5.28	<u>1.79</u> 5.16	<u>1.66</u> 7.33
Milk products					
Whole milk, yogurt, and cream	8.65	0.13	0.40	0.18	0.29
Lower fat and skim milk and lowfat yogurt	0.00	8.63	8.40	8.62	12.77
All cheese (including cheese soup and sauce)	0.02	0.01	0.04	0.03	0.01
Milk drinks and milk desserts	<u>0.05</u> 8.72	<u>0.00</u> 8.77	<u>0.07</u> 8.91	<u>0.07</u> 8.89	<u>0.07</u> 13.14
Meat and beans					
Beef, pork, veal, lamb, and game	0.28	0.10	0.34	0.50	0.45
Chicken, turkey, and game birds	0.23	0.05	0.29	1.32	0.58
Fish and fish products	0.25	0.85	1.14	1.28	1.91
Bacon, sausages, and luncheon meats (including spreads)	0.02	0.01	0.04	0.04	0.07
Nuts, nut butters, and seeds	0.21	0.29	0.28	0.23	0.21
Eggs and egg mixtures	<u>0.02</u> 1.01	<u>0.14</u> 1.44	<u>0.03</u> 2.12	<u>0.03</u> 3.39	<u>0.03</u> 3.26
Other foods					
Table fats, oils, and salad dressings	0.10	0.26	0.16	0.21	0.34
Gravies, sauces, condiments, and spices	0.36	0.04	0.13	0.12	0.46
Coffee and tea	0.00	0.00	0.00	0.00	0.00
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	0.14	0.04	0.24	0.34	0.49
Sugars, sweets, and candies	0.02	0.02	0.05	0.03	0.08
Soups (ready-to-serve and condensed)	0.20	0.01	0.09	0.08	0.04
Soups (dry)	0.01	0.00	0.00	0.01	0.02
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	<u>1.20</u> 2.03	<u>0.00</u> 0.36	<u>0.04</u> 0.71	<u>0.01</u> 0.79	<u>0.02</u> 1.44

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

For children age 1, all milk and yogurt were assigned to the whole milk, yogurt, and cream category, because dietary guidance recommends consumption of primarily whole milk products for these children.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

Table 4b. Moderate-Cost Food Plan market baskets, quantities of food purchased for a week, by age-gender group, 2007 (cont'd)

Food category	Females				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
Total pounds	37.56	36.49	38.94	38.53	34.58
<i>Pounds per week</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	1.30	1.53	1.09	2.67	2.11
Whole grain cereals (including hot cereal mixes)	0.20	1.19	0.68	0.07	0.07
Popcorn and other whole grain snacks	0.48	0.02	0.72	0.29	0.04
Non-whole grain breads, cereals, rice, pasta, pies pastries, snacks, and flours	<u>1.31</u> 3.30	<u>0.90</u> 3.64	<u>0.92</u> 3.41	<u>0.28</u> 3.31	<u>0.55</u> 2.78
Vegetables					
All potato products	1.04	1.26	1.49	1.19	0.89
Dark-green vegetables	2.77	1.83	1.80	1.75	2.67
Orange vegetables	0.84	0.68	1.59	0.90	0.72
Canned and dry beans, lentils, and peas (legumes)	1.50	2.33	2.04	1.12	1.46
Other vegetables	<u>4.04</u> 10.19	<u>2.72</u> 8.81	<u>3.54</u> 10.46	<u>2.62</u> 7.58	<u>2.83</u> 8.57
Fruits					
Whole fruits	5.63	5.07	5.14	7.80	4.93
Fruit juices	<u>1.79</u> 7.41	<u>1.64</u> 6.71	<u>1.50</u> 6.64	<u>1.57</u> 9.38	<u>1.61</u> 6.55
Milk products					
Whole milk, yogurt, and cream	0.76	0.58	0.40	0.06	0.22
Lower fat and skim milk and lowfat yogurt	12.12	12.59	12.86	13.25	12.80
All cheese (including cheese soup and sauce)	0.07	0.01	0.08	0.00	0.01
Milk drinks and milk desserts	<u>0.10</u> 13.05	<u>0.06</u> 13.24	<u>0.05</u> 13.40	<u>0.02</u> 13.34	<u>0.04</u> 13.08
Meat and beans					
Beef, pork, veal, lamb, and game	0.47	0.78	0.86	0.45	0.75
Chicken, turkey, and game birds	0.25	0.97	1.45	2.13	0.94
Fish and fish products	1.13	0.26	0.32	0.56	0.13
Bacon, sausages, and luncheon meats (including spreads)	0.03	0.01	0.02	0.00	0.01
Nuts, nut butters, and seeds	0.12	0.24	0.58	0.54	0.79
Eggs and egg mixtures	<u>0.03</u> 2.04	<u>0.02</u> 2.28	<u>0.06</u> 3.30	<u>0.04</u> 3.73	<u>0.03</u> 2.65
Other foods					
Table fats, oils, and salad dressings	0.41	0.24	0.27	0.32	0.19
Gravies, sauces, condiments, and spices	0.31	0.36	0.16	0.14	0.10
Coffee and tea	0.00	0.00	0.00	0.00	0.00
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	0.69	0.42	0.92	0.30	0.26
Sugars, sweets, and candies	0.06	0.08	0.06	0.02	0.04
Soups (ready-to-serve and condensed)	0.04	0.70	0.31	0.40	0.36
Soups (dry)	0.00	0.00	0.00	0.01	0.00
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	<u>0.05</u> 1.57	<u>0.01</u> 1.81	<u>0.02</u> 1.75	<u>0.00</u> 1.18	<u>0.00</u> 0.96

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

Table 4b. Moderate-Cost Food Plan market baskets, quantities of food purchased for a week, by age-gender group, 2007 (cont'd)

Food category	Females				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
Total pounds	37.56	36.49	38.94	38.53	34.58
<i>Pounds per week</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	1.30	1.53	1.09	2.67	2.11
Whole grain cereals (including hot cereal mixes)	0.20	1.19	0.68	0.07	0.07
Popcorn and other whole grain snacks	0.48	0.02	0.72	0.29	0.04
Non-whole grain breads, cereals, rice, pasta, pies pastries, snacks, and flours	<u>1.31</u> <u>3.30</u>	<u>0.90</u> <u>3.64</u>	<u>0.92</u> <u>3.41</u>	<u>0.28</u> <u>3.31</u>	<u>0.55</u> <u>2.78</u>
Vegetables					
All potato products	1.04	1.26	1.49	1.19	0.89
Dark-green vegetables	2.77	1.83	1.80	1.75	2.67
Orange vegetables	0.84	0.68	1.59	0.90	0.72
Canned and dry beans, lentils, and peas (legumes)	1.50	2.33	2.04	1.12	1.46
Other vegetables	<u>4.04</u> 10.19	<u>2.72</u> 8.81	<u>3.54</u> 10.46	<u>2.62</u> 7.58	<u>2.83</u> 8.57
Fruits					
Whole fruits	5.63	5.07	5.14	7.80	4.93
Fruit juices	<u>1.79</u> 7.41	<u>1.64</u> 6.71	<u>1.50</u> 6.64	<u>1.57</u> 9.38	<u>1.61</u> 6.55
Milk products					
Whole milk, yogurt, and cream	0.76	0.58	0.40	0.06	0.22
Lower fat and skim milk and lowfat yogurt	12.12	12.59	12.86	13.25	12.80
All cheese (including cheese soup and sauce)	0.07	0.01	0.08	0.00	0.01
Milk drinks and milk desserts	<u>0.10</u> 13.05	<u>0.06</u> 13.24	<u>0.05</u> 13.40	<u>0.02</u> 13.34	<u>0.04</u> 13.08
Meat and beans					
Beef, pork, veal, lamb, and game	0.47	0.78	0.86	0.45	0.75
Chicken, turkey, and game birds	0.25	0.97	1.45	2.13	0.94
Fish and fish products	1.13	0.26	0.32	0.56	0.13
Bacon, sausages, and luncheon meats (including spreads)	0.03	0.01	0.02	0.00	0.01
Nuts, nut butters, and seeds	0.12	0.24	0.58	0.54	0.79
Eggs and egg mixtures	<u>0.03</u> 2.04	<u>0.02</u> 2.28	<u>0.06</u> 3.30	<u>0.04</u> 3.73	<u>0.03</u> 2.65
Other foods					
Table fats, oils, and salad dressings	0.41	0.24	0.27	0.32	0.19
Gravies, sauces, condiments, and spices	0.31	0.36	0.16	0.14	0.10
Coffee and tea	0.00	0.00	0.00	0.00	0.00
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	0.69	0.42	0.92	0.30	0.26
Sugars, sweets, and candies	0.06	0.08	0.06	0.02	0.04
Soups (ready-to-serve and condensed)	0.04	0.70	0.31	0.40	0.36
Soups (dry)	0.00	0.00	0.00	0.01	0.00
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	<u>0.05</u> 1.57	<u>0.01</u> 1.81	<u>0.02</u> 1.75	<u>0.00</u> 1.18	<u>0.00</u> 0.96

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

Table 4c. Liberal Food Plan market baskets, quantities of food purchased for a week, by age-gender group, 2007

Food category	Children				
	1 year	2-3 years	4-5 years	6-8 years	9-11 years
Total pounds	22.37	22.39	32.07	33.47	51.34
<i>Pounds per week</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	0.00	0.01	1.38	0.84	1.37
Whole grain cereals (including hot cereal mixes)	0.23	0.10	0.12	0.07	0.07
Popcorn and other whole grain snacks	0.00	0.40	0.20	0.50	0.46
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	<u>0.37</u> 0.59	<u>0.69</u> <u>1.20</u>	<u>0.93</u> <u>2.63</u>	<u>1.20</u> <u>2.60</u>	<u>1.46</u> <u>3.36</u>
Vegetables					
All potato products	0.64	1.22	0.73	0.76	2.16
Dark-green vegetables	1.11	0.47	0.53	0.63	2.75
Orange vegetables	0.10	0.41	0.95	0.64	2.27
Canned and dry beans, lentils, and peas (legumes)	0.45	1.33	1.06	1.72	1.24
Other vegetables	<u>2.94</u> 5.24	<u>1.88</u> <u>5.31</u>	<u>1.59</u> <u>4.87</u>	<u>2.50</u> <u>6.24</u>	<u>4.05</u> <u>12.47</u>
Fruits					
Whole fruits	3.66	2.49	9.98	9.06	14.67
Fruit juices	<u>1.57</u> 5.23	<u>1.28</u> <u>3.77</u>	<u>1.86</u> <u>11.84</u>	<u>1.73</u> <u>10.79</u>	<u>1.88</u> <u>16.55</u>
Milk products					
Whole milk, yogurt, and cream	9.54	0.36	0.23	0.27	0.35
Lower fat and skim milk and lowfat yogurt	0.00	9.07	9.29	9.16	13.82
All cheese (including cheese soup and sauce)	0.01	0.03	0.04	0.03	0.05
Milk drinks and milk desserts	<u>0.03</u> 9.58	<u>0.05</u> <u>9.52</u>	<u>0.06</u> <u>9.62</u>	<u>0.11</u> <u>9.57</u>	<u>0.11</u> <u>14.34</u>
Meat and beans					
Beef, pork, veal, lamb, and game	0.25	0.13	0.31	0.54	0.68
Chicken, turkey, and game birds	0.17	0.10	0.31	0.99	0.53
Fish and fish products	0.27	0.85	1.21	1.11	1.01
Bacon, sausages, and luncheon meats (including spreads)	0.01	0.08	0.03	0.09	0.21
Nuts, nut butters, and seeds	0.27	0.18	0.32	0.40	0.57
Eggs and egg mixtures	<u>0.01</u> 0.98	<u>0.13</u> <u>1.48</u>	<u>0.02</u> <u>2.21</u>	<u>0.01</u> <u>3.14</u>	<u>0.04</u> <u>3.04</u>
Other foods					
Table fats, oils, and salad dressings	0.13	0.34	0.17	0.20	0.21
Gravies, sauces, condiments, and spices	0.36	0.38	0.39	0.27	0.23
Coffee and tea	0.00	0.00	0.00	0.00	0.00
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	0.12	0.29	0.23	0.41	0.93
Sugars, sweets, and candies	0.12	0.06	0.03	0.05	0.10
Soups (ready-to-serve and condensed) Soups (dry)	0.01 0.01	0.00 0.00	0.05 0.01	0.15 0.01	0.08 0.02
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	<u>0.01</u> 0.75	<u>0.04</u> <u>1.12</u>	<u>0.02</u> <u>0.90</u>	<u>0.04</u> <u>1.13</u>	<u>0.03</u> <u>1.59</u>

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

For children age 1, all milk and yogurt were assigned to the whole milk, yogurt, and cream category, because dietary guidance recommends consumption of primarily whole milk products for these children.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

**Table 4c. Liberal Food Plan market baskets, quantities of food purchased for a week, by age-gender group, 2007
(cont'd)**

Food category	Males				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
Total pounds	43.50	49.01	50.36	48.87	46.94
<i>Pounds per week</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	0.37	2.59	1.34	2.23	1.92
Whole grain cereals (including hot cereal mixes)	0.13	0.50	1.74	0.10	0.14
Popcorn and other whole grain snacks	1.48	0.48	0.42	0.65	0.15
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	<u>2.07</u> 4.04	<u>1.47</u> <u>5.04</u>	<u>1.72</u> <u>5.22</u>	<u>1.45</u> 4.43	<u>0.95</u> 3.16
Vegetables					
All potato products	2.44	1.23	2.01	1.80	1.93
Dark-green vegetables	0.84	1.06	1.58	1.97	4.70
Orange vegetables	0.68	0.99	1.05	1.07	0.99
Canned and dry beans, lentils, and peas (legumes)	2.93	2.70	2.96	2.51	2.82
Other vegetables	<u>4.13</u> 11.01	<u>5.51</u> <u>11.48</u>	<u>4.66</u> <u>12.26</u>	<u>4.20</u> 11.55	<u>3.08</u> 13.52
Fruits					
Whole fruits	7.12	9.16	8.03	8.67	8.36
Fruit juices	<u>2.08</u> 9.20	<u>1.76</u> 10.93	<u>1.62</u> 9.65	<u>1.24</u> 9.91	<u>1.71</u> 10.07
Milk products					
Whole milk, yogurt, and cream	0.46	0.79	0.60	0.53	0.27
Lower fat and skim milk and lowfat yogurt	13.67	13.34	13.06	13.40	13.32
All cheese (including cheese soup & sauce)	0.08	0.09	0.22	0.09	0.05
Milk drinks and milk desserts	<u>0.14</u> 14.36	<u>0.16</u> 14.36	<u>0.24</u> 14.12	<u>0.48</u> 14.50	<u>0.21</u> 13.85
Meat and beans					
Beef, pork, veal, lamb, and game	0.89	2.18	1.47	1.26	0.92
Chicken, turkey, and game birds	0.23	0.25	1.66	1.54	2.64
Fish and fish products	1.14	0.49	0.50	0.95	0.39
Bacon, sausages, and luncheon meats (including spreads)	0.04	0.11	0.15	0.06	0.05
Nuts, nut butters, and seeds	0.41	0.60	0.39	0.52	0.20
Eggs and egg mixtures	<u>0.27</u> 2.99	<u>0.11</u> 3.73	<u>0.18</u> 4.36	<u>0.17</u> 4.51	<u>0.08</u> 4.28
Other foods					
Table fats, oils, and salad dressings	0.34	0.38	0.50	0.52	0.51
Gravies, sauces, condiments, and spices	0.42	0.44	0.50	0.22	0.30
Coffee and tea	0.00	0.00	0.00	0.01	0.00
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	0.79	1.77	3.30	2.85	0.56
Sugars, sweets, and candies	0.08	0.35	0.16	0.13	0.06
Soups (ready-to-serve and condensed)	0.23	0.52	0.25	0.20	0.62
Soups (dry)	0.01	0.01	0.02	0.01	0.01
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	<u>0.03</u> 1.89	<u>0.01</u> 3.47	<u>0.02</u> 4.75	<u>0.03</u> 3.96	<u>0.00</u> 2.05

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

**Table 4c. Liberal Food Plan market baskets, quantities of food purchased for a week, by age-gender group, 2007
(cont'd)**

Food category	Females				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
Total pounds	47.82	41.68	46.93	41.15	40.32
<i>Pounds per week</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	1.29	1.89	1.69	2.24	2.09
Whole grain cereals (including hot cereal mixes)	0.21	0.36	0.72	0.08	0.08
Popcorn and other whole grain snacks	0.44	0.04	0.03	0.75	0.02
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	<u>1.66</u> 3.60	<u>1.21</u> 3.50	<u>1.26</u> 3.69	<u>0.44</u> 3.50	<u>0.84</u> 3.04
Vegetables					
All potato products	2.41	1.94	1.96	1.50	1.07
Dark-green vegetables	1.46	1.73	3.14	1.18	4.65
Orange vegetables	0.80	0.87	0.89	0.88	0.94
Canned and dry beans, lentils, peas (legumes)	2.52	2.27	2.37	1.31	1.83
Other vegetables	<u>2.91</u> 10.10	<u>3.94</u> 10.74	<u>3.82</u> 12.18	<u>3.20</u> 8.08	<u>2.99</u> 11.47
Fruits					
Whole fruits	12.18	6.07	9.42	9.88	7.38
Fruit juices	<u>1.73</u> 13.91	<u>1.58</u> 7.65	<u>1.65</u> 11.06	<u>0.44</u> 10.32	<u>0.39</u> 7.78
Milk products					
Whole milk, yogurt, and cream	0.37	0.39	0.33	0.21	0.19
Lower fat and skim milk and lowfat yogurt	13.79	14.19	13.62	14.37	13.89
All cheese (including cheese soup and sauce)	0.08	0.28	0.09	0.01	0.00
Milk drinks and milk desserts	<u>0.18</u> 14.42	<u>0.10</u> 14.97	<u>0.17</u> 14.22	<u>0.06</u> 14.66	<u>0.04</u> 14.13
Meat and beans					
Beef, pork, veal, lamb, and game	1.30	0.96	0.86	0.86	0.80
Chicken, turkey, and game birds	1.48	0.31	0.72	0.78	0.74
Fish and fish products	0.60	0.39	0.54	1.30	0.46
Bacon, sausages, and luncheon meats (including spreads)	0.08	0.14	0.08	0.00	0.05
Nuts, nut butters, and seeds	0.28	0.70	0.76	0.64	0.79
Eggs and egg mixtures	<u>0.04</u> 3.77	<u>0.07</u> 2.57	<u>0.08</u> 3.05	<u>0.10</u> 3.69	<u>0.03</u> 2.87
Other foods					
Table fats, oils, and salad dressings	0.44	0.38	0.37	0.26	0.20
Gravies, sauces, condiments, and spices	0.32	0.39	0.37	0.17	0.11
Coffee and tea	0.00	0.00	0.00	0.00	0.00
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	0.98	1.05	1.64	0.27	0.09
Sugars, sweets, and candies	0.10	0.13	0.09	0.04	0.02
Soups (ready-to-serve and condensed)	0.15	0.25	0.22	0.17	0.60
Soups (dry)	0.02	0.00	0.01	0.01	0.01
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	<u>0.02</u> 2.02	<u>0.03</u> 2.24	<u>0.04</u> 2.74	<u>0.00</u> 0.92	<u>0.00</u> 1.04

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

Table 5. Average market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans, pounds of food per week, 2007

Food category	Low-cost	Moderate-cost	Liberal
Total Pounds	35.72	38.39	44.66
Grains			
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	1.61	1.62	1.60
Whole grain cereals (including hot cereal mixes)	0.35	0.33	0.64
Popcorn and other whole grain snacks	0.15	0.45	0.34
Non-whole grain breads, cereals, rice, pasta, pies pastries, snacks, and flours	<u>0.97</u> 3.08	<u>1.21</u> 3.61	<u>1.25</u> 3.83
Vegetables			
All potato products	1.29	1.27	1.72
Dark-green vegetables	0.97	1.58	2.12
Orange vegetables	0.75	1.00	0.96
Canned and dry beans, lentils, and peas (legumes)	1.52	1.86	2.23
Other vegetables	<u>2.74</u> 7.28	<u>3.24</u> 8.95	<u>3.76</u> 10.80
Fruits			
Whole fruits	5.65	5.73	8.71
Fruit juices	<u>1.53</u> 7.19	<u>1.64</u> 7.37	<u>1.45</u> 10.16
Milk products			
Whole milk, yogurt, and cream	0.85	0.35	0.40
Lower fat and skim milk and lowfat yogurt	10.02	12.13	13.00
All cheese (including cheese soup and sauce)	0.14	0.07	0.10
Milk drinks and milk desserts	<u>0.20</u> 11.22	<u>0.09</u> 12.64	<u>0.18</u> 13.68
Meat and beans			
Beef, pork, veal, lamb, and game	0.85	0.78	1.01
Chicken, turkey, and game birds	0.87	1.87	1.01
Fish and fish products	0.37	0.54	0.70
Bacon, sausages, and luncheon meats (including spreads)	0.10	0.05	0.09
Nuts, nut butters, and seeds	0.65	0.42	0.54
Eggs and egg mixtures	<u>0.15</u> 2.99	<u>0.09</u> 3.75	<u>0.11</u> 3.46
Other foods			
Table fats, oils, and salad dressings	0.34	0.32	0.37
Gravies, sauces, condiments, and spices	0.25	0.25	0.34
Coffee and tea	0.00	0.00	0.00
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	2.96	1.15	1.62
Sugars, sweets, and candies	0.18	0.08	0.11
Soups (ready-to-serve and condensed)	0.18	0.23	0.24
Soups (dry)	0.01	0.01	0.01
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	<u>0.04</u> 3.97	<u>0.04</u> 2.08	<u>0.02</u> 2.72

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones. Components of the market baskets are discussed in terms of pounds; therefore, fluids such as milk are weighted more prominently than are dry foods, and juice concentrates are weighted less prominently than are their reconstituted forms.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

The following are some of the more noticeable differences among food subgroups:

Grains

Given the dietary constraint that at least half of the recommended grains in market baskets of all three food plans had to be in the form of whole grains, approximately 67 percent of the grains in the three average baskets are whole grain breads, rice, pasta, and pastries; whole grain cereals; and popcorn and other whole grain snacks. Whole grain cereals compose a larger amount and share in the Liberal Food Plan because such cereals tend to be more expensive and are therefore limited by the price constraint.

Vegetables

A variety of vegetables make up the vegetable group in the three average food plan market baskets, which is in line with the MyPyramid dietary constraint that a set amount of vegetables from the dark-green, orange, starchy, other vegetable, and legumes subgroups have to be in the baskets. Potato products account for a slightly higher share and dark-green vegetables a lower share in the Low-Cost Plan, compared with the Liberal Plan. This is likely because people in the second food spending quartile consume more potatoes and less dark-green vegetables, compared with people in the top quartile because potatoes are relatively inexpensive sources of nutrients. It could also represent different preferences of individuals.

Fruits

Whole fruits account for well over three-fourths (78 to 86 percent) of the fruit portion of the three average food plan market baskets; thus, the amount of fruit is consistent with MyPyramid recommendations that at least half of recommended fruit intake be in the form of whole fruit. The much higher than 50-percent share of whole fruits is likely due to whole fruit providing more fiber. The greater share of whole fruit in the Liberal Plan as compared to the other two food plans reflects the taste preferences of the average person who consumes a higher cost diet.

Milk Products

The food category consisting of lower fat and skim milk and lowfat yogurt accounts for most (89 to 96 percent) of the milk portion of the three average market baskets, because these forms of milk products are lower in total and saturated fat. Milk products constitute a large share of the three average baskets because these products are good sources of vitamin A, vitamin B₁₂, riboflavin, calcium, phosphorus, magnesium, potassium, and zinc. Also, because milk products are mostly sold in fluid rather than dry form, they weigh more.

Meat and Beans

More expensive meat and bean subgroups (beef, pork, veal, and game, and fish and fish products) make up a higher amount and share of the Liberal Food Plan, compared with the Low-Cost Food Plan. Fish and fish products account for 20 percent of the meat and beans portion of the average Liberal market basket versus 12 percent for the Low-Cost basket.

The remaining portions of the meat and beans group are dispersed among the various meat and beans subgroups for the average market baskets of the three plans. This is because constraints were placed on the meat and beans subgroups so that model solutions would fall within a narrower range of average consumption to ensure a more palatable diet. It should also be noted that because this food category is in as-purchased form, it has a high refuse factor, especially for the chicken, turkey, and game birds subgroup. While the actual amounts of chicken, turkey, and game birds appear high in the Moderate-Cost basket, the refuse factor for poultry is about 50 percent.

Other Foods

Other foods, particularly soft drinks, sodas, fruit drinks, and ades, compose a larger amount of the Low-Cost Food Plan than they do in the other two plans. These drinks are inexpensive sources of calories and have high consumer preference. Thus, after dietary standards (MyPyramid Food Guidance System, 1997-2005 RDAs, AIs, and AMDRs, etc.) are met, the amount of this food category increases in the Low-Cost Plan. The actual amount of soft drinks, sodas, fruit drinks, and ades in the average basket of the Low-Cost Plan translates to about three 16-ounce cans of soda per week, which is far less than current consumption.

Average Food Plan Market Baskets Versus Average Consumption and Previous Market Baskets

To understand how reported diets would need to change to meet the dietary standards of the new Low-Cost, Moderate-Cost, and Liberal Food Plans, CNPP compared the average market baskets for each plan (in pounds) with average consumption (in pounds) based on the food expenditure quartile corresponding to each plan as reported in NHANES 2001-2002. Using the same technique that produced a weighted average market basket, CNPP calculated a weighted average consumption basket for each food plan. Table 6 shows the percentage difference between the average consumption baskets for people in the second, third, and top food spending quartiles and the average market baskets for the Low-Cost, Moderate-Cost, and Liberal Food Plans. The average food plan baskets contain more pounds of total food than do the average consumption baskets because fruit and vegetables generally weigh more per calorie than meats and foods high in fat and sugar.

The average market baskets for all three food plans contain more grains (20 to 67 percent more), vegetables (116 to 151 percent), fruits (118 to 168 percent), and milk products (131 to 170 percent) than people are eating. The Low-Cost basket contains the same amount of meat and beans that people are eating; the Moderate-Cost basket, 10 percent more meat and beans; and the Liberal basket, 10 percent less. However, these differences vary widely by meat and bean subgroup. The average market baskets of all three plans contain less beef, pork, veal, lamb, and game, and more fish and fish products, and nuts, nut butters, and seeds than do the baskets based on average consumption; these latter two food categories are relatively lower in fat. The average market baskets of all three food plans

have much less (58 to 77 percent) other foods such as fats, oils, and sweets than is the case for corresponding baskets based on average consumption. Foods in this group are typically high in fat and calories. Having more vegetables, fruits, and milk products and less other foods in all three food plans, compared with average consumption levels, is not surprising because the food plans represent a nutritious diet. As noted earlier, the Healthy Eating Index, an indicator of the quality of Americans' diet, shows that most people need to improve their diet (Basiotis et al., 2002).

Table 6. Average market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans versus corresponding average consumption

	Low-Cost			Moderate-Cost			Liberal		
	Average consumption	Market basket	Difference	Average consumption	Market basket	Difference	Average consumption	Market basket	Difference
<i>Pounds per week</i>									
Grains	2.57	3.08	+20%	2.52	3.61	+44%	2.29	3.83	+67%
Vegetables	3.36	7.28	+116%	3.65	8.95	+145%	4.30	10.80	+151%
Fruit	2.80	7.19	+157%	3.37	7.37	+118%	3.80	10.16	+168%
Milk products	4.85	11.22	+131%	5.06	12.64	+150%	5.06	13.68	+170%
Meat and beans	2.99	2.99	0%	3.41	3.75	+10%	3.86	3.46	-10%
Other foods (fats, oils, sweets, etc.)	9.53	3.97	-58%	9.14	2.08	-77%	8.85	2.72	-69%
Total	26.10	35.72		27.15	38.39		28.16	44.66	

Note: The numbers are rounded; thus, when summed, they may not equal the respective totals.

CNPP also compared the weighted average market baskets of the new and previous Low-Cost, Moderate-Cost, and Liberal Food Plans (table 7). Compared with their respective previous market baskets, the new market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans contain fewer pounds of grains (9 to 16 percent), more vegetables (28 to 52 percent), more fruits (45 to 66 percent), more milk products (52 to 60 percent), less meat and beans (34 to 49 percent), and less other foods (fats, oils sweets, etc.) (34 to 57 percent).

It should be noted that in the previous food plan market baskets, legumes were placed in the meat and beans market basket group; in this update, they were placed in the vegetables market basket group. If this change had not been made, there would be almost no change in the meat and beans group (in pounds) between the previous and updated Low-Cost and Moderate-Cost Food Plans, and a lower decrease in the meat and beans group for the Liberal Food Plan. There would still be an increase in vegetables between the previous and updated plans; however, this increase would be less pronounced than what is shown in table 7. Also, frozen entrees in the previous food plans were allocated to their respective market basket group (e.g., frozen fish sticks to meat and beans), while in this update, they were placed in the other foods market basket group. However, frozen entrees are a very small portion of all the market baskets.

Table 7. Average market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans versus previous baskets

	Low-Cost basket			Moderate-Cost basket			Liberal basket		
	Previous	New	Difference	Previous	New	Difference	Previous	New	Difference
	<i>Pounds per week</i>			<i>Pounds per week</i>			<i>Pounds per week</i>		
Grains	3.66	3.08	-16%	3.98	3.61	-9%	4.38	3.83	-13%
Vegetables	5.68	7.28	+28%	6.33	8.95	+41%	7.10	10.80	+52%
Fruit	4.32	7.19	+66%	5.07	7.37	+45%	6.46	10.16	+57%
Milk products	7.36	11.22	+52%	7.92	12.64	+60%	8.87	13.68	+54%
Meat and beans	4.77	2.99	-37%	5.69	3.75	-34%	6.72	3.46	-49%
Other foods (fats, oils, sweets, etc.)	6.04	3.97	-34%	4.88	2.08	-57%	5.96	2.72	-54%
Total	31.83	35.72		33.87	38.39		39.49	44.66	

Notes: In the previous food plans: (1) legumes were placed in the meat and beans group; whereas now, they are in the vegetable group; and (2) frozen entrees were allocated to their respective food groups; whereas now, they are in the other food group.

The numbers are rounded; thus, when summed, they may not equal the respective totals.

The differences between the previous and new food plan market baskets reflect changes in dietary guidance over time. The 2005 Dietary Guidelines for Americans encourage increased intakes of fruit, vegetables, and fat-free or lowfat milk and milk products. The new USDA food guidance system, MyPyramid, recommends more of these food groups than was the case with the 1992 Food Guide Pyramid, in part because of changes in the recommendations by the Food and Nutrition Board of the Institute of Medicine (Institute of Medicine, Food and Nutrition Board, 1997, 1998, 2000a, 2000b, 2002, 2004, 2005). The increased amounts of these food groups inevitably resulted in decreases of the other food groups, especially those found in the "other foods" market basket group consisting of oils, candy, soda, and fruit drinks because foods in this group are less nutrient dense.

Future Cost Updates of the Food Plans

The method used to update the monthly costs of the previous market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans, as well as the recently updated Thrifty Food Plan, will be used to update the monthly costs of the revised market baskets for the three food plans.¹⁰ This method, originally approved by an expert panel of economists, uses the monthly Consumer Price Indexes (CPIs) for specific food categories to update prices for the food categories of food plan market baskets from one month to the next. Each of the 29 food categories of a food plan has a corresponding CPI or set of corresponding CPIs that are applied to update the appropriate cost of the food categories for the market basket for each age-gender group. For food categories with more than one corresponding CPI, CNPP uses a weighted average of the appropriate CPIs. The following illustrates the overall concept of matching food categories to CPIs: The CPI for breakfast cereal is used to update the cost of the category “whole grain cereals”; the CPI for potatoes is used to update the category “all potato products”; the CPI for cheese and related products is used to update the category “all cheese”; the CPI for poultry is used to update the category “chicken, turkey, and game birds.” This example illustrates the use of two CPIs for the category “lower fat and skim milk and lowfat yogurt.” CNPP uses a weighted average (based on expenditure patterns) of the CPI for fresh milk other than whole and the CPI for other dairy and related products. After the CPIs are applied to each food category, the new costs of the food categories are summed to determine the new total cost of the food plan market basket for each age-gender group for the month.

¹⁰To calculate the September 2007 food plan costs, the expenditure shares of the revised food plans’ market baskets will be applied to the costs of the August 2007 food plan market baskets. Future monthly cost updates will be based on these new market basket expenditure shares and the previous month’s food plan costs.

Conclusions

The Low-Cost, Moderate-Cost, and Liberal Food Plans represent nutritious diets at three cost levels. This report presents the 2007 revision of the market baskets of each of the three food plans. The 2007 revision reflects recent changes in dietary guidance and incorporates updated information on food composition, consumption patterns, and food prices at the same inflation-adjusted cost of the previous food plans. The new market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans, however, do not meet the vitamin E, potassium, and sodium recommendations for most age-gender groups. To meet the prevailing recommendations for these nutrients would result in market baskets very different from typical consumption habits (in the case of vitamin E and potassium) or would require changes in food-manufacturing practices (in the case of sodium).

The new (2007) market baskets of the Low-Cost, Moderate-Cost, and Liberal Food Plans are now the official USDA baskets. Cost updates of the three food plans will be based on the content of these baskets. Also, the list of foods and quantities specified in the market baskets may be used in nutrition and consumer education programs designed to help people eat a healthful diet at various cost levels.

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Appendix 1

Food Group Database Documentation

Food categories developed for the 2007 Food Plans are based mainly on the classification of the previous food plans' food categories used in the 1989-91 CSFII, with modifications suitable to meet the recommendations from the 1997-2005 Dietary Reference Intakes, the 2005 Dietary Guidelines for Americans, food intake patterns of MyPyramid, and food plan models. In addition, criteria used in the development of the previous food plans and the MyPyramid food groups were considered in categorizing foods. Within major food categories, individual foods were placed in the same food category when they had similar nutritive values for certain nutrients, such as the content of total fat and discretionary solid fat or calories from the sum of discretionary solid fat and added sugars. The cost of the foods was also used in grouping meat products.

Except for alcoholic beverages, foods reported consumed by all individuals 1 year old and older are grouped into 58 categories in the food category database, totaling 4,152 individual foods. The consumption data are from the 2001-2002 National Health and Nutrition Examination Survey (NHANES). Foods included in each category and criteria used to assign a food to a particular food category are described below.

Grains

Breads, yeast and quick—whole grain; Breads, yeast and quick—non-whole grain: This category consists of breads, rolls, muffins, bagels, tortillas, taco shells, pancakes, waffles, biscuits, and cornbread. Breads or bread products with 50 percent or more of ounce equivalents from whole grain were placed in the whole grain category for the purposes of food group classification; all remaining breads and bread products were placed in the non-whole grain category.

Breakfast cereal—whole grain, regular calories; Breakfast cereals—whole grain, low calories: Breakfast cereals containing 50 percent or more ounce equivalents from whole grain per 100 grams (e.g., oatmeal, oats, bulgur, buckwheat, and certain ready-to-eat cereals) were placed in the whole grain category. This breakfast cereal group is subdivided into regular and low calorie based on the amount of discretionary solid fat and added sugars (SFAS). Cereals with 15 percent or more of calories from SFAS were placed in the regular calories SFAS group, and cereals with less than 15 percent of calories from SFAS were placed in the low calories SFAS group. The 15-percent cutoff is primarily based on the sugar content of sugar-coated cereals.

Breakfast cereal—non-whole grain: Breakfast cereals with less than 50 percent of ounce equivalents from whole grain (e.g., cream of wheat, grits, oat bran, wheat germ, corn flakes, and Rice Krispies®) were placed in the non-whole grain category.

Rice and pasta—whole grain; Rice and pasta—non-whole grain: This category consists of all types of rice and pasta products, such as macaroni, noodles, and spaghetti. Products with 50 percent or more of ounce equivalents from whole grain were placed in the whole grain category. Products with less than 50 percent of ounce equivalents from whole grain were placed in the non-whole grain category.

Cakes, pies, and other sweet bakery products—whole grain; Cakes, pies, and other sweet bakery products—non-whole grain: This category consists of cakes, cookies, pies, pastries, doughnuts, sweet rolls, croissants, graham crackers, breakfast and meal replacement bars, and other sweet products. Products with 50 percent or more of ounce equivalents from whole grain were placed in the whole grain category. Products with less than 50 percent of ounce equivalents from whole grain were placed in the non-whole grain category.

Grain-based snacks—whole grain; Grain-based snacks—non-whole grain: This category consists of crackers, popcorn, pretzels, and corn- or wheat-based salty snacks. Products with 50 percent or more of ounce equivalents from whole grain were placed in the whole grain category. Products with less than 50 percent of ounce equivalents from whole grain were placed in the non-whole grain category.

Grain mixtures—regular fat; Grain mixtures—lowfat: This category consists of tacos, enchiladas, chimichangas, pizzas, pasta with meat and/or vegetables, egg rolls, lasagna, and rice with meat and/or vegetables. Generally, mixtures were placed in the regular or lowfat category based on food descriptors. However, in some cases, a food code was reviewed and the mixture was placed in a particular category based on the fat content of its recipe components. Six percent was selected as the cutoff value for regular versus lowfat by looking at the fat content of fried or high-fat grain mixtures such as tacos, nachos, burritos, pizza, and pasta with cheese. Pizza without cheese contains 6.25 percent fat; rice dishes with beans, macaroni salads, meatless lasagna, and lo mein with meat contain 4.5 to 6 percent fat. Because pizza is considered a higher fat food, and those foods with a fat content of 4.5 to 6 percent are considered lower fat foods, mixtures with a fat content less than 6 percent by weight were placed in the lowfat category and mixtures with a fat content of 6 percent or more by weight were placed in the regular fat category.

Vegetables and Fruits

Potato products—regular fat; Potato products—lowfat: This category consists of fresh and processed white potatoes, french fries, hash browns, home fries, potato chips, and potato sticks. The regular fat category consists of cooked, boiled, baked, scalloped, mashed, and stuffed potatoes; and potato salad, German style. The high fat category consists of potato chips; french fried potatoes; hash browns; potato puffs; potato patties; potato pancakes; potato puddings and salads; and mashed potatoes with added fat, egg, and/or cheese.

Dark-green vegetables—added fat; Dark-green vegetables—no added fat: This category consists of vegetables such as broccoli, chard, collard greens, mustard greens, kale, and spinach; juices from these vegetables are also included. The Food and Nutrient Database for Dietary Studies (FNDDS) was used to determine whether fat was added to the vegetable during cooking. If fat was added, the vegetable was placed in the added-fat category; if no fat was added, the vegetable was placed in the no-added-fat category.

Orange vegetables—added fat; Orange vegetables—no added fat: This category consists of vegetables such as carrots, pumpkin, winter squash, and sweet potatoes; juices from these vegetables are also included. The FNDDS was used to determine whether fat was added to the vegetable during cooking. If fat was added, the vegetable was placed in the added-fat category; if no fat was added, the vegetable was placed in the no-added-fat category.

Tomatoes—added fat; Tomatoes—no added fat: This category consists of all fresh and canned tomato products, such as raw tomatoes, canned tomato sauce, tomato puree, tomato paste, tomato soup, and tomato juice. The FNDDS was used to determine whether fat was added to the tomatoes during cooking. If fat was added, the tomato food items were placed in the added-fat category; if no fat was added, the tomato food items were placed in the no-added-fat category.

Other vegetables—added fat; Other vegetables—no added fat: This category consists of vegetables such as beans, beets, cabbage, cauliflower, corn, cassava, eggplant, green peas, lettuce, bell peppers, snow peas, turnips, and Brussels sprouts; juices from these vegetables are also included. The FNDDS was used to determine whether fat was added to the vegetable during cooking. If fat was added, the vegetable was placed in the added-fat category; if no fat was added, the vegetable was placed in the no-added-fat category.

Mixed vegetables—added fat; Mixed vegetables—no added fat: This category consists of mixed vegetable groups and/or vegetables in combination with other foods. Creamed peas and carrots; carrots in tomato sauce; cucumber salad with creamy dressing; mixed vegetables containing corn, lima beans, and peas; batter-dipped fried vegetables; and vegetable casseroles with cheese are examples of foods in this category. The FNDDS was used to determine whether fat was added to the vegetable during cooking. If fat was added, the vegetable was placed in the added-fat category; if no fat was added, the vegetable was placed in the no-added-fat category.

Citrus fruits, melons, and berries; Citrus fruit, melon, and berry juices: This category consists of fresh, canned, frozen, and dried citrus fruits (e.g., limes, lemons, grapefruits, oranges, tangelos, and tangerines); fresh, canned, frozen, and dried melons (e.g., cantaloupe, honeydew, and watermelon); and fresh, canned, frozen, and dried berries (e.g., blackberries, blueberries, cranberries, raspberries, and strawberries). Fruit juices from these fruits are included in the citrus fruit, melon and berry juices category.

Fruits other than citrus fruits, melons, and berries; Fruit juices other than citrus, melon, and berry: This category consists of fresh, canned, frozen, and dried fruits other than citrus fruits, melons, and berries, such as apples, apricots, bananas, cherries, grapes, papayas, peaches, pears, and plums. Fruit juices made from these fruits are included in the juices category.

Milk Products

Milk and milk-based foods—regular fat: This category consists of all fluid, evaporated, condensed, and dry whole milk (fat content 3 percent or higher by weight) as well as regular yogurt, coffee creams, cream substitutes, whipping creams, sour creams and dips, and neufchatel/cream cheese and dips. For dry milk, the fat content was equivalent to whole milk after reconstitution.

Milk and milk-based foods—lower fat: This category consists of all fluid, evaporated, and dry reduced-fat milk (fat content 2 percent by weight), light milk (fat content 0.5 to 1 percent by weight), and skim (fat-free) milk as well as lowfat or nonfat yogurt (fat content less than 1.55 percent by weight). For dry milk, the fat content was equivalent to reduced-fat, light, or skim milk after reconstitution.

Cheese: This category consists of natural, processed, and imitation cheeses; cottage cheese; cheese spreads; cheese dips; and cheese soups. These foods were not subclassified into a regular and a lowfat category, because the average amount of lowfat cheese reported as having been consumed was too low to be separated out and to be used in the mathematical model.

Milk-based drinks and desserts—regular fat; Milk-based drinks and desserts—lower fat: This category consists of milk-based drinks, such as flavored milk, malted milk, eggnogs, cocoa, hot chocolate, infant formulas, meal replacement drinks, soy-based drinks, and milk-based dry mixes; dairy desserts made with ice milk, ice cream, and frozen yogurt; and sherbet, puddings, and custard. Milk-based drinks with a fat content equivalent to that of whole milk (fat content 3 percent or higher by weight) and dairy desserts having more than 6 percent fat content by weight were placed in the regular fat category. Milk-based drinks with a fat content equivalent to that of reduced-fat or skim milk (fat content less than 3 percent by weight) and dairy desserts having 6 percent or less fat content by weight were placed in the lower fat category. For dry milk-based drinks, the fat level of whole milk powder was used as the basis for placing the dry mixes into the regular or lower fat category. Whole milk powder has a fat content of 26.7 percent; thus, milk-based dry drink mixes having less fat than 26.7 percent were placed in the lower fat category.

Meat and Beans

Red meats—regular discretionary solid fat, regular cost; Red meats—regular discretionary solid fat, low cost: This category consists of beef, pork, veal, and lamb; game meats; and organ meats, such as liver and kidney. Red meats with discretionary solid fat content of more than the median amount (5.9 grams per 100 grams of cooked form) were placed in the regular discretionary solid fat category. Discretionary solid fat in red meat is the excess fat from the lean meat fat composite standard, which includes natural fat as well as cooking fats. To determine regular cost versus low cost, CNPP arranged each food in the regular discretionary solid fat red meat category in descending order in terms of its average cost per 100 grams of edible forms. The top 66.66 percent of foods were placed in the regular-cost category, and the bottom 33.34 percent of foods, in terms of cost, were placed in the low-cost category.

Red meats—low discretionary solid fat, regular cost; Red meats—low discretionary solid fat, low cost: This category consists of beef, pork, veal, lamb, and game meats. Red meats with a discretionary solid fat content that was equal to or less than the median amount (5.9 grams per 100 grams of cooked form) were considered low discretionary solid fat. Discretionary solid fat in red meat is the excess fat from the lean meat fat composite standard, which includes natural fat as well as cooking fats. To determine regular cost versus low cost, CNPP arranged each food in the low discretionary solid fat red meat category in descending order in terms of its average cost per 100 grams of edible forms. The top 66.66 percent of foods were placed in the regular-cost category, and the bottom 33.34 percent of foods, in terms of cost, were placed in the low-cost category.

Poultry—regular discretionary solid fat, regular cost; Poultry—regular discretionary solid fat, low cost: This category consists of cooked and processed chicken, turkey, duck, Cornish game hen, game birds, and organ meats (e.g., liver and giblets). Poultry products with a discretionary solid fat content of more than the median amount (3.3 grams per 100 grams of cooked form) are included in the regular discretionary solid fat group. Discretionary solid fat in poultry is the excess fat from the lean meat fat composite standard, which includes natural fat as well as cooking fats. To determine regular cost versus low cost, CNPP arranged each food in the regular discretionary solid fat poultry category in descending order in terms of its average cost per 100 grams of edible forms. The top 66.66 percent of foods were placed in the regular-cost category, and the bottom 33.34 percent of foods, in terms of cost, were placed in the low-cost category.

Poultry—low discretionary solid fat, regular cost; Poultry—low discretionary solid fat, low cost: This category consists of cooked and processed chicken, turkey, duck, Cornish game hen, game birds, and organ meats (e.g., liver and giblets) with a discretionary solid fat content equal to or less than the median amount (3.3 grams per 100 grams of cooked form). Discretionary solid fat in poultry is the excess fat from the lean meat fat composite standard, which includes natural fat as well as cooking fats. To determine regular cost versus low cost, CNPP arranged each food in the low discretionary solid fat poultry

category in descending order in terms of its average cost per 100 grams of edible forms. The top 66.66 percent of foods were placed in the regular-cost category, and the bottom 33.34 percent of foods, in terms of cost, were placed in the low-cost category.

Fish—regular discretionary solid fat, regular cost; Fish—regular discretionary solid fat, low cost: This category consists of raw, cooked, and processed fish and shellfish with more than the median amount (2.8 grams per 100 grams edible form) of discretionary solid fat. Discretionary solid fat in fish is the excess fat from the lean meat fat composite standard, which only includes cooking fats. To determine regular cost versus low cost, CNPP arranged each food in the regular discretionary solid fat fish category in descending order in terms of its average cost per 100 grams of edible form. The top 66.66 percent of foods were placed in the regular-cost category, and the bottom 33.34 percent of foods, in terms of cost, were placed in the low-cost category.

Fish—low discretionary solid fat, regular cost; Fish—low discretionary solid fat, low cost: This category consists of raw, cooked, and processed fish and shellfish, with equal to or less than the median amount (2.8 grams per 100 grams edible form) of discretionary solid fat. Discretionary solid fat in fish is the excess fat from the lean meat fat composite standard, which only includes cooking fats. To determine regular cost versus low cost, CNPP arranged each food in the low discretionary solid fat fish category in descending order in terms of its average cost per 100 grams of edible form. The top 66.66 percent of foods were placed in the regular-cost category, and the bottom 33.34 percent of foods, in terms of cost, were placed in the low-cost category.

Lunch meats, sausages, and bacon—regular fat; Lunch meats, sausages, and bacon—lowfat: This category consists of sausage, bacon, and luncheon meat-type foods, such as frankfurters. Foods with the descriptor “lowfat” or which contain 25 percent less fat by weight than their original form were placed in the lowfat category. The 25-percent cutoff value is based on the Food and Drug Administration definition of regular- versus reduced-fat meat. For some foods, fat comparisons were not possible, so a cutoff of a fat content of 20 percent or more by weight was used to classify foods into regular and lowfat products.

Eggs and egg mixtures: This category consists of eggs, egg substitutes, eggs with vegetables and/or meat, egg drop soup, and meringues. Foods in this category are not subdivided based on fat content because egg-based products have similar fat contents.

Meat, poultry, and fish mixtures—regular discretionary solid fat; Meat, poultry, and fish mixtures—low discretionary solid fat: This category consists of beef, veal, pork, lamb, chicken, turkey, and fish with vegetables and/or grain mixture products. Mixtures were placed in the regular discretionary solid fat category based on having more than the median amount (2.7 grams per 100 grams of edible form); mixtures with equal to or less than the median amount of discretionary solid fat per 100 grams of edible forms were placed in the low discretionary solid fat group. Discretionary solid fat in meat, poultry, and fish mixtures is the excess fat from the lean meat fat composite standard, which includes natural fat as well as cooking fats.

Dry beans, peas, lentil dishes, and mixtures: This category consists of black, white, lima, pinto, red, mung, and kidney beans; lentils; and different types of peas cooked alone or with other foods. Soybean products (e.g., miso, tofu, and soy meal) and soybean-based meat substitutes (e.g., textured protein products and soyburger) were also placed in this food category.

Nuts and seeds: This category consists of all ground and tree nuts, such as almonds, cashews, peanuts, coconut, and walnuts; seeds, such as sunflower, pumpkin, and sesame; and nut butters, such as peanut butter.

Other Foods

Fats, oils, salad dressings, sauces, and condiments: This category consists of table fats, such as butter, margarine, vegetable oil, and butter blends; fat-free butter replacements; cooking fats, such as lard, shortening, corn oil, olive oil, peanut oil, rapeseed oil, safflower oil, soybean oil, and sunflower oil; salad dressings; and condiments, sauces, gravies, and seasonings.

Coffee and tea: This category consists of instant, ground, and fluid coffees and teas with or without caffeine and with or without sugar or sweeteners.

Fruit drinks, soft drinks, and ades—regular calorie—low calorie: This category consists of fruit juice drinks, cola- and pepper-type soft drinks, root beer, ginger ale, cream soda, and lemonade. All drinks that are sugar-free or are described in the food descriptors as low calorie are included in the low calorie category. Drinks containing sugar are included in the regular calorie category.

Sugars and sweets: This category consists of all types of sugars, sweeteners, and syrups such as honey, jams, jellies, marmalades, preserves, icings, gelatin desserts, marshmallow, and fudge; all types of candies and chocolates; and chewing gum.

Appendix 2

Description of the Optimization Model for the Low-Cost, Moderate-Cost, and Liberal Food Plans

The model for the Low-Cost, Moderate-Cost, and Liberal Food Plans is a mathematical programming model that solves for a food plan that meets the nutritional requirements of a healthful diet for groups of individuals distinguished by age and gender. The food plan is in terms of average daily consumption for a set of food groups, with each food group consisting of a share of more detailed food items. The share is based on the consumption of foods within each food group by the age-gender group.

Nutritional requirements are imposed as upper and lower bounds on the sum total of nutrients consumed and on meeting the recommendations of MyPyramid, given data on the nutrient contents of the foods consumed in the groups by all individuals. The budget constraint for each age-gender group is calculated from the cost of the previous food plans, inflated to 2001-2002 by the Consumer Price Indexes for food. Prices for each food group are based on consumption of foods within the group by each age-gender group.

Finally, consumption constraints are placed on all food groups to prevent the solution from containing an unreasonable amount of food from a single group. These constraints also force a more varied diet than the model would otherwise contain. Lower bounds on all food groups are also required to prevent taking the log of 0. The objective function is designed to minimize the change in consumption of the food groups from average consumption by age-gender group that is required to meet the nutritional and cost constraints. Average consumption of each food group by each age-gender group is taken from National Health and Nutrition Examination Survey 2001-2002.

The model is a constrained nonlinear optimization, with linear constraints and a nonlinear objective function. The model is programmed in the General Algebraic Modeling System and solved sequentially with both the Minos and Conopt solvers.¹

¹ For more information on these and other solvers, see www.gams.com.

Optimization Model of the Low-Cost, Moderate-Cost, and Liberal Food Plans

Minimize the objective function:*

$$\sum_f (FBS)_f (\ln(FP)_f - \ln(\text{Current})_f)^2$$

Subject to:

$$\sum_f (FP)_f (p)_f \leq \text{Set Cost Limit}$$

$$\begin{aligned} \sum_f (\text{Quantity of nutrient group in } FP_f) &\geq 1997-2005 \text{ RDA/AI/AMDR} \\ &\leq \text{upper limit if applicable} \end{aligned}$$

$$\begin{aligned} \sum_f (\text{Amount of total fat in } FP_f) &> \text{lower limit set by AMDR for age group} \\ &\leq \text{upper limit set by AMDR for age group} \end{aligned}$$

$$\sum_f (\text{Amount of saturated fat in } FP_f) < 10\% \text{ of total kilocalories}$$

$$\begin{aligned} \sum_f (\text{Amount of linoleic acid in } FP_f) &\geq 5\% \text{ of total calories} \\ &\leq 10\% \text{ of total calories} \end{aligned}$$

$$\begin{aligned} \sum_f (\text{Amount of } \alpha\text{-linolenic acid in } FP_f) &\geq 0.6\% \text{ of total calories} \\ &\leq 1.2\% \text{ of total calories} \end{aligned}$$

$$\begin{aligned} \sum_f (\text{Amount of carbohydrates in } FP_f) &\geq 45\% \text{ of total calories} \\ &\leq 65\% \text{ of total calories} \end{aligned}$$

$$\sum_f (\text{mg of cholesterol in } FP_f) \leq 300 \text{ mg}$$

$$\sum_f (\text{grams of fiber in } FP_f) \geq 14 \text{ g/1,000 calories}$$

$$\sum_f (\text{mg of sodium in } FP_f) \leq \text{median consumption of sodium for age-gender group or upper limit, whichever is higher}$$

$$\sum_f (\text{Calories in } FP_f) = \text{IOM equation for median height and weight at low activity level} \pm 5 \text{ percent}$$

$$\sum_f (\text{Number of MyPyramid group servings in } FP_f) \geq \text{Recommended for calorie pattern}$$

$$(FP)_f > 0$$

$$(FP)_f \leq (\text{Upper Limit}) (\text{Current})_f$$

Where:

$$FBS_f = \text{Food Budget Share} = \frac{p_f (\text{Current})_f}{\sum_f p_f (\text{Current})_f}$$

f = food group (58 food groups)

p_f = price of food group f

FP_f = amount of food for 1 day in food group f at Food Plan level in grams

Current_f = amount of food for 1 day in food group f at Current Consumption level in grams

Nutrient group = protein, thiamin, riboflavin, niacin, folate, calcium, copper, phosphorus, potassium, magnesium, iron, zinc, vitamins A, E, C, B₆, B₁₂

Upper Limit = multiplier set on a case-by-case basis to allow the model to meet both the MyPyramid requirements and prevent an unreasonable amount of any one food group

RDA = Recommended Dietary Allowances

AI = Adequate Intakes

AMDR = Acceptable Macronutrient Distribution Ranges

*The objective function states that the food plan basket should be as close to current consumption as possible. The food budget share (FBS) weight gives higher priority to food groups on which consumers spend more of their budgets. The food plan objective function is constructed to minimize the distance between optimal food consumption and current consumption while simultaneously meeting the 14 group constraints listed under "Subject to."

Appendix 3. Food Plan Consumption Patterns in USDA MyPyramid Amounts of Foods

Table A-3a. Low-Cost Food Plan consumption patterns in USDA MyPyramid amounts of food per day, by age-gender group, 2007

Food category	Age-Gender Group				
	1 year	2-3 years	Children	6-8 years	9-11 years
Total energy (kcal)	1,106	1,313	1,532	1,751	2,189
Grains (oz equivalents)	3.30	4.40	5.50	6.74	6.60
Whole grains	1.65	2.20	2.75	2.75	3.30
Vegetables (cups)	2.66	1.65	1.94	2.27	3.08
Dark-green vegetables	.16	.24	.27	.39	.81
Orange vegetables	.08	.16	.42	.24	.31
Starchy vegetables	.25	.39	.39	.39	.47
Other vegetables	2.10	.71	.71	.86	1.02
Legumes	.08	.16	.16	.39	.47
Fruits (cups)	1.10	1.35	1.97	1.65	3.93
Whole fruits	.62	1.23	1.49	1.17	3.45
Milk products (cups)	2.20	2.20	2.20	2.20	3.41
Meat and beans (oz equivalents)	2.20	3.30	4.40	5.50	6.25
Oils (grams)	16.50	19.32	19.94	24.20	29.73

	Males				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
Total energy (kcal)	2,653	3,317	3,095	2,846	2,408
Grains (oz equivalents)	8.80	11.00	11.00	9.90	7.70
Whole grains	4.40	5.50	5.50	4.95	3.85
Vegetables (cups)	3.30	4.40	3.85	3.85	3.30
Dark-green vegetables	.47	.47	.47	.48	.47
Orange vegetables	.31	.39	.39	.39	.31
Starchy vegetables	.94	1.41	1.10	1.10	.94
Other vegetables	1.11	1.58	1.35	1.34	1.11
Legumes	.47	.55	.55	.55	.47
Fruits (cups)	2.20	2.75	2.75	3.16	2.20
Whole fruits	1.60	2.40	2.27	2.68	1.72
Milk products (cups)	3.35	3.30	3.30	3.30	3.30
Meat and beans (oz equivalents)	7.15	7.70	7.70	7.15	6.96
Oils (grams)	34.10	48.40	39.60	37.40	31.90

	Females				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
Total energy (kcal)	2,432	2,432	2,432	2,408	1,981
Grains (oz equivalents)	7.70	7.70	7.70	7.70	6.60
Whole grains	3.85	3.85	3.85	4.61	3.30
Vegetables (cups)	3.30	3.30	3.39	3.30	2.75
Dark-green vegetables	.47	.48	.57	.48	.48
Orange vegetables	.31	.31	.31	.31	.31
Starchy vegetables	.94	.94	.94	.94	.47
Other vegetables	1.11	1.10	1.10	1.10	1.02
Legumes	.47	.47	.47	.47	.47
Fruits (cups)	2.20	2.20	2.20	2.20	1.73
Whole fruits	1.96	1.72	1.77	1.73	1.24
Milk products (cups)	3.31	3.34	3.30	3.30	3.30
Meat and beans (oz equivalents)	6.60	6.60	6.93	6.60	6.06
Oils (grams)	31.90	31.90	31.90	31.90	26.40

Note: These numbers include an estimated 10-percent waste factor.

Table A-3b. Moderate-Cost Food Plan consumption patterns in USDA MyPyramid amounts of food per day, by age-gender group, 2007

Food category	Age-Gender Group				
	1 year	2-3 years	4-5 years	6-8 years	9-11 years
Total energy (kcal)	1,206	1,433	1,672	1,910	2,388
Grains (oz equivalents)	3.60	4.80	6.00	7.29	8.24
Whole grains	1.80	2.40	3.00	3.00	3.60
Vegetables (cups)	3.07	1.80	2.50	2.79	4.78
Dark-green vegetables	.42	.26	.26	.34	1.42
Orange vegetables	.09	.18	.54	.26	.44
Starchy vegetables	.26	.43	.43	.43	.51
Other vegetables	2.24	.77	1.11	1.34	1.91
Legumes	.09	.17	.17	.43	.51
Fruits (cups)	1.20	1.56	1.80	1.80	2.40
Whole fruits	.71	1.14	1.31	1.31	1.91
Milk products (cups)	2.41	2.40	2.40	2.40	3.60
Meat and beans (oz equivalents)	2.40	3.60	4.90	6.00	6.60
Oils (grams)	18.00	22.00	20.40	26.40	32.40
	Males				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
Total energy (kcal)	2,866	3,582	3,343	3,136	2,627
Grains (oz equivalents)	9.60	12.00	13.19	10.80	8.40
Whole grains	4.80	6.00	6.00	6.07	4.20
Vegetables (cups)	4.35	4.80	4.23	4.49	4.36
Dark-green vegetables	.51	.52	.51	.82	1.17
Orange vegetables	.34	.43	.47	.43	.34
Starchy vegetables	1.03	1.54	1.20	1.20	1.03
Other vegetables	1.96	1.71	1.46	1.46	1.32
Legumes	.51	.60	.60	.60	.51
Fruits (cups)	2.70	3.40	3.00	2.40	2.40
Whole fruits	2.09	2.91	2.52	1.92	1.91
Milk products (cups)	3.60	3.60	3.60	3.60	3.60
Meat and beans (oz equivalents)	7.80	8.40	8.40	7.80	7.20
Oils (grams)	41.48	52.80	43.20	40.80	34.80
	Female				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
Total energy (kcal)	2,627	2,627	2,653	2,653	2,171
Grains (oz equivalents)	8.40	8.40	8.40	8.40	7.20
Whole grains	4.20	4.20	5.24	7.05	4.85
Vegetables (cups)	4.09	3.83	4.07	3.93	4.15
Dark-green vegetables	1.00	.75	.67	.85	1.67
Orange vegetables	.34	.34	.67	.34	.34
Starchy vegetables	1.03	1.03	1.03	1.03	.51
Other vegetables	1.21	1.20	1.20	1.20	1.11
Legumes	.51	.51	.51	.51	.51
Fruits (cups)	2.83	2.40	2.40	2.40	1.80
Whole fruits	2.34	1.92	1.92	1.94	1.32
Milk products (cups)	3.60	3.60	3.60	3.60	3.60
Meat and beans (oz equivalents)	7.20	7.20	7.20	7.20	6.29
Oils (grams)	34.80	34.80	34.80	34.80	28.80

Note: These numbers include an estimated 20-percent waste factor.

Table A-3c. Liberal Food Plan consumption patterns in USDA MyPyramid amounts of food per day, by age-gender group, 2007

Food category	Age-Gender Group				
	1 year	2-3 years	4-5 years	6-8 years	9-11 years
Total energy (kcal)	1,307	1,552	1,811	2,070	2,587
Grains (oz equivalents)	3.90	5.20	6.50	6.83	8.67
Whole grains	1.95	2.60	3.25	3.25	3.90
Vegetables (cups)	2.56	1.95	2.36	2.60	4.34
Dark-green vegetables	.65	.28	.45	.37	1.05
Orange vegetables	.09	.19	.43	.29	.98
Starchy vegetables	.61	.46	.46	.46	.56
Other vegetables	1.12	.84	.84	1.02	1.21
Legumes	.09	.19	.19	.46	.56
Fruits (cups)	1.65	1.35	3.17	3.29	3.90
Whole fruits	1.17	.97	2.68	2.79	3.41
Milk products (cups)	2.60	2.60	2.60	2.60	3.90
Meat and beans (oz equivalents)	2.60	3.90	5.33	6.50	7.15
Oils (grams)	19.50	22.10	22.10	28.60	35.10

	Males				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
Total energy (kcal)	3,104	3,881	3,622	3,397	2,874
Grains (oz equivalents)	10.40	13.00	13.75	11.70	9.10
Whole grains	5.20	6.50	6.50	6.72	4.95
Vegetables (cups)	3.90	5.20	4.55	5.05	5.20
Dark-green vegetables	.56	.56	.58	1.07	1.86
Orange vegetables	.37	.46	.46	.46	.37
Starchy vegetables	1.11	1.68	1.30	1.30	1.11
Other vegetables	1.31	1.86	1.58	1.58	1.30
Legumes	.56	.65	.65	.65	.56
Fruits (cups)	3.44	3.87	3.25	2.60	2.60
Whole fruits	2.83	3.37	2.76	2.24	2.12
Milk products (cups)	3.90	3.90	3.90	3.90	3.90
Meat and beans (oz equivalents)	8.45	9.10	9.41	8.45	7.80
Oils (grams)	43.03	57.20	46.80	44.20	37.70

	Females				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
Total energy (kcal)	2,846	2,846	2,846	2,874	2,352
Grains (oz equivalents)	9.81	9.10	9.10	9.10	7.80
Whole grains	4.55	5.06	4.77	7.63	4.77
Vegetables (cups)	3.90	4.05	4.70	3.90	5.05
Dark-green vegetables	.57	.72	1.37	.56	2.36
Orange vegetables	.37	.37	.37	.37	.37
Starchy vegetables	1.11	1.11	1.11	1.11	.56
Other vegetables	1.30	1.30	1.30	1.30	1.21
Legumes	.56	.56	.56	.56	.56
Fruits (cups)	3.39	2.60	2.91	2.60	1.95
Whole fruits	2.90	2.11	2.43	2.48	1.83
Milk products (cups)	3.90	4.00	3.90	3.90	3.90
Meat and beans (oz equivalents)	7.80	7.80	7.90	7.80	7.02
Oils (grams)	37.70	37.70	37.70	37.70	31.20

Note: These numbers include an estimated 30-percent waste factor.

Appendix 4. Expenditure Shares for Food Categories in the Food Plans

Table A-4a. Expenditure shares for food categories in the Low-Cost Food Plan, by age-gender group, 2007

Food category	Children				
	1 year	2-3 years	4-5 years	6-8 years	9-11 years
<i>Percent of Cost</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	4.98	4.84	6.74	1.45	7.51
Whole grain cereals (including hot cereal mixes)	1.95	2.24	5.11	2.31	2.03
Popcorn and other whole grain snacks	0.59	2.49	0.19	4.76	0.43
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	5.30	7.75	5.81	11.91	4.44
Vegetables					
All potato products	0.88	2.36	1.19	0.64	0.90
Dark-green vegetables	2.73	4.99	4.04	4.18	0.43
Orange vegetables	0.70	2.17	4.32	1.53	2.35
Canned and dry beans, lentils, and peas (legumes)	5.14	1.51	2.46	9.04	3.90
Other vegetables	31.63	7.65	6.72	8.11	3.96
Fruits					
Whole fruits	8.12	11.95	14.50	7.80	24.66
Fruit juices	5.46	1.19	3.85	3.39	2.73
Milk products					
Whole milk, yogurt, and cream	16.37	1.77	0.46	0.21	0.48
Lower fat and skim milk and lowfat yogurt	0.00	13.64	15.55	9.27	13.63
All cheese (including cheese soup and sauce)	0.10	0.49	0.21	0.00	0.45
Milk drinks and milk desserts	0.00	0.00	0.13	0.00	0.18
Meat and beans					
Beef, pork, veal, lamb, and game	6.09	4.04	3.61	22.77	3.97
Chicken, turkey, and game birds	2.54	2.58	2.51	2.43	1.78
Fish and fish products	2.64	22.86	13.80	5.68	13.82
Bacon, sausages, and luncheon meats (including spreads)	0.01	0.23	0.42	1.98	0.20
Nuts, nut butters, and seeds	0.91	1.20	3.80	1.05	4.43
Eggs and egg mixtures	0.01	0.07	0.06	0.06	0.13
Other foods					
Table fats, oils, and salad dressings	1.46	1.29	2.01	0.60	0.55
Gravies, sauces, condiments, and spices	1.45	0.83	1.44	0.65	1.14
Coffee and tea	0.00	0.00	0.00	0.00	0.01
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	0.62	0.39	0.51	0.02	0.72
Sugars, sweets, and candies	0.04	0.44	0.18	0.05	0.34
Soups (ready-to-serve and condensed)	0.12	1.02	0.03	0.04	4.61
Soups (dry)	0.03	0.00	0.31	0.09	0.14
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	0.12	0.00	0.06	0.00	0.10

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones.

For children age 1, all milk and yogurt were assigned to the whole milk, yogurt, and cream category, because dietary guidance recommends consumption of primarily whole milk products for these children.

The numbers are rounded; thus, when summed, they may not equal 100 percent.

Table A-4a. Expenditure shares for food categories in the Low-Cost Food Plan, by age-gender group, 2007 (cont'd)

Food category	Males				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
<i>Percent of Cost</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	5.80	10.90	3.23	7.96	2.36
Whole grain cereals (including hot cereal mixes)	1.36	1.54	3.95	4.51	15.12
Popcorn and other whole grain snacks	9.22	0.43	3.18	0.35	0.29
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	6.22	4.98	4.74	4.93	2.55
Vegetables					
All potato products	2.41	4.97	2.78	3.57	2.98
Dark-green vegetables	2.50	1.81	4.20	4.72	3.47
Orange vegetables	1.30	1.13	2.39	2.55	2.08
Canned and dry beans, lentils, and peas (legumes)	3.83	5.84	5.46	3.79	4.45
Other vegetables	7.18	9.83	9.09	9.32	7.08
Fruits					
Whole fruits	10.39	14.90	15.31	15.97	12.71
Fruit juices	4.19	2.19	2.62	3.02	3.13
Milk products					
Whole milk, yogurt, and cream	1.52	1.54	1.30	0.66	0.92
Lower fat and skim milk and lowfat yogurt	10.43	7.96	8.92	10.79	13.53
All cheese (including cheese soup and sauce)	0.77	1.70	2.47	0.95	1.78
Milk drinks and milk desserts	1.68	0.67	0.84	0.63	0.42
Meat and beans					
Beef, pork, veal, lamb, and game	7.59	5.33	7.02	6.40	8.69
Chicken, turkey, and game birds	1.97	3.13	4.86	3.50	3.73
Fish and fish products	6.71	0.43	1.86	5.37	1.29
Bacon, sausages, and luncheon meats (including spreads)	0.91	1.07	1.38	0.80	0.54
Nuts, nut butters, and seeds	3.97	3.77	5.01	4.27	6.85
Eggs and egg mixtures	0.16	0.23	0.38	0.26	0.39
Other foods					
Table fats, oils, and salad dressings	1.25	1.13	1.74	0.96	1.46
Gravies, sauces, condiments, and spices	0.82	2.68	1.12	0.70	0.58
Coffee and tea	0.01	0.05	0.15	0.21	0.18
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	3.53	8.32	4.23	2.03	1.09
Sugars, sweets, and candies	1.18	2.50	0.91	0.49	0.42
Soups (ready-to-serve and condensed)	2.37	0.72	0.36	1.05	1.69
Soups (dry)	0.11	0.10	0.11	0.14	0.14
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	0.63	0.17	0.41	0.09	0.07

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones.

The numbers are rounded; thus, when summed, they may not equal 100 percent.

Table A-4a. Expenditure shares for food categories in the Low-Cost Food Plan, by age-gender group, 2007 (cont'd)

Food category	Females				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
<i>Percent of Cost</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	8.63	8.39	6.03	11.64	6.91
Whole grain cereals (including hot cereal mixes)	1.66	0.83	1.74	0.88	4.07
Popcorn and other whole grain snacks	0.24	0.33	0.25	0.18	0.00
Non-whole grain breads, cereals, rice, pasta, pies pastries, snacks, and flours	4.59	6.47	4.17	2.88	4.25
Vegetables					
All potato products	4.85	2.82	2.53	3.64	1.17
Dark-green vegetables	4.40	5.05	4.95	4.02	5.84
Orange vegetables	2.30	1.86	2.11	2.26	2.65
Canned and dry beans, lentils, and peas (legumes)	6.36	8.47	4.87	4.80	3.43
Other vegetables	5.76	11.49	8.80	9.40	7.95
Fruits					
Whole fruits	17.33	13.67	17.99	14.26	11.53
Fruit juices	1.66	2.97	2.56	2.85	3.88
Milk products					
Whole milk, yogurt, and cream	1.66	1.01	1.34	1.75	1.23
Lower fat and skim milk and lowfat yogurt	10.43	11.80	11.04	12.86	16.53
All cheese (including cheese soup and sauce)	1.12	1.01	1.80	0.48	0.42
Milk drinks and milk desserts	0.96	0.70	1.09	0.83	0.52
Meat and beans					
Beef, pork, veal, lamb, and game	3.78	5.81	7.59	5.69	8.58
Chicken, turkey, and game birds	3.27	3.04	3.99	4.92	4.86
Fish and fish products	8.83	2.51	2.52	5.34	0.87
Bacon, sausages, and luncheon meats (including spreads)	0.75	0.48	0.93	0.05	0.22
Nuts, nut butters, and seeds	4.67	4.35	5.92	5.95	9.72
Eggs and egg mixtures	0.20	0.33	0.60	0.31	0.24
Other foods					
Table fats, oils, and salad dressings	0.75	0.92	0.71	0.48	0.75
Gravies, sauces, condiments, and spices	0.44	0.84	0.57	0.64	0.48
Coffee and tea	0.05	0.15	0.16	0.11	0.50
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	2.76	3.33	4.15	1.95	1.14
Sugars, sweets, and candies	1.63	1.08	1.05	1.32	0.53
Soups (ready-to-serve and condensed)	0.02	0.05	0.20	0.44	1.32
Soups (dry)	0.84	0.13	0.14	0.04	0.31
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	0.08	0.11	0.18	0.02	0.10

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones.

The numbers are rounded; thus, when summed, they may not equal 100 percent.

Table A-4b. Expenditure shares for food categories in the Moderate-Cost Food Plan, by age-gender group, 2007

Food category	Children				
	1 year	2-3 years	4-5 years	6-8 years	9-11 years
<i>Percent of Cost</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	4.94	2.84	4.50	2.93	2.23
Whole grain cereals (including hot cereal mixes)	0.52	3.44	1.55	2.18	0.39
Popcorn and other whole grain snacks	0.33	5.71	3.72	3.55	5.15
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	3.50	9.18	5.46	11.93	7.05
Vegetables					
All potato products	0.75	1.73	1.22	0.67	0.18
Dark-green vegetables	6.72	4.44	4.02	3.79	9.55
Orange vegetables	0.30	1.77	5.40	2.10	2.09
Canned and dry beans, lentils, and peas (legumes)	1.35	2.33	2.40	3.83	4.09
Other vegetables	29.72	7.75	11.92	10.30	9.73
Fruits					
Whole fruits	8.07	12.79	12.65	9.83	13.46
Fruit juices	3.95	3.59	3.84	3.52	2.23
Milk products					
Whole milk, yogurt, and cream	14.34	0.37	0.73	0.24	0.26
Lower fat and skim milk and lowfat yogurt	0.00	15.48	12.25	11.25	12.38
All cheese (including cheese soup and sauce)	0.30	0.08	0.50	0.29	0.12
Milk drinks and milk desserts	0.24	0.00	0.23	0.26	0.21
Meat and beans					
Beef, pork, veal, lamb, and game	3.75	0.85	3.69	4.58	3.09
Chicken, turkey, and game birds	1.46	0.38	1.57	5.30	2.14
Fish and fish products	4.57	21.81	19.26	18.89	19.78
Bacon, sausages, and luncheon meats (including spreads)	0.22	0.07	0.41	0.55	0.77
Nuts, nut butters, and seeds	1.42	3.27	1.88	1.47	1.13
Eggs and egg mixtures	0.06	0.57	0.10	0.07	0.06
Other foods					
Table fats, oils, and salad dressings	0.40	1.01	0.58	0.75	0.87
Gravies, sauces, condiments, and spices	1.84	0.16	0.42	0.39	1.90
Coffee and tea	0.00	0.00	0.00	0.00	0.01
Soft drinks, sodas, fruit drinks, ades (including rice beverages)	0.37	0.11	0.43	0.53	0.58
Sugars, sweets, and candies	0.46	0.06	0.37	0.24	0.32
Soups (ready-to-serve and condensed)	1.11	0.09	0.44	0.42	0.14
Soups (dry)	0.15	0.07	0.09	0.08	0.03
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	9.17	0.02	0.35	0.07	0.08

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones.

For children age 1, all milk and yogurt were assigned to the whole milk, yogurt, and cream category, because dietary guidance recommends consumption of primarily whole milk products for these children.

The numbers are rounded; thus, when summed, they may not equal 100 percent.

**Table A-4b. Expenditure shares for food categories in the Moderate-Cost Food Plan, by age-gender group, 2007
(cont'd)**

Food category	Males				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
<i>Percent of Cost</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	1.23	6.09	10.99	5.20	2.51
Whole grain cereals (including hot cereal mixes)	0.16	0.53	0.63	0.97	10.17
Popcorn and other whole grain snacks	15.24	5.32	1.17	4.84	1.96
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	7.92	7.67	8.61	4.71	4.18
Vegetables					
All potato products	1.88	4.16	1.97	2.88	2.20
Dark-green vegetables	1.73	3.35	3.37	3.76	11.31
Orange vegetables	2.65	2.03	2.12	1.90	1.75
Canned and dry beans, lentils, and peas (legumes)	6.08	11.91	7.96	3.85	3.92
Other vegetables	7.62	6.66	8.53	8.70	9.93
Fruits					
Whole fruits	12.41	12.73	12.69	10.91	12.48
Fruit juices	2.84	2.14	2.25	2.53	2.52
Milk products					
Whole milk, yogurt, and cream	0.39	0.38	0.49	0.47	0.48
Lower fat and skim milk and lowfat yogurt	11.63	8.77	10.57	11.64	10.31
All cheese (including cheese soup and sauce)	0.64	0.79	0.93	0.47	0.96
Milk drinks and milk desserts	0.27	0.49	0.36	0.51	0.78
Meat and beans					
Beef, pork, veal, lamb, and game	6.41	5.42	6.25	7.76	6.32
Chicken, turkey, and game birds	1.60	6.97	10.13	16.74	8.98
Fish and fish products	10.24	7.76	2.50	5.27	1.68
Bacon, sausages, and luncheon meats (including spreads)	0.30	0.80	0.76	0.75	0.63
Nuts, nut butters, and seeds	5.00	1.38	1.84	2.19	3.92
Eggs and egg mixtures	0.16	0.19	0.28	0.35	0.20
Other foods					
Table fats, oils, and salad dressings	0.93	0.98	1.15	0.60	0.87
Gravies, sauces, condiments, and spices	0.85	0.42	1.20	0.48	0.48
Coffee and tea	0.05	0.02	0.15	0.07	0.04
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	1.12	1.64	1.95	1.23	0.54
Sugars, sweets, and candies	0.45	0.52	0.48	0.41	0.20
Soups (ready-to-serve and condensed)	0.00	0.62	0.39	0.40	0.64
Soups (dry)	0.02	0.10	0.03	0.35	0.06
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	0.19	0.15	0.23	0.04	0.01

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones.

The numbers are rounded; thus, when summed, they may not equal 100 percent.

**Table A-4b. Expenditure shares for food categories in the Moderate-Cost Food Plan, by age-gender group, 2007
(cont'd)**

Food category	Females				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
<i>Percent of Cost</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	4.42	5.22	3.40	9.30	8.62
Whole grain cereals (including hot cereal mixes)	1.71	9.13	6.79	0.67	0.65
Popcorn and other whole grain snacks	4.08	0.16	5.16	2.78	0.38
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	6.11	5.35	2.92	1.37	3.18
Vegetables					
All potato products	2.01	2.45	1.89	3.78	1.26
Dark-green vegetables	9.88	6.70	5.87	6.67	11.95
Orange vegetables	2.31	1.68	3.75	2.44	2.22
Canned and dry beans, lentils, and peas (legumes)	3.99	15.61	9.39	5.95	3.69
Other vegetables	11.21	6.83	9.93	6.74	9.54
Fruits					
Whole fruits	14.12	12.34	12.35	16.13	14.21
Fruit juices	2.50	2.51	2.23	2.64	3.31
Milk products					
Whole milk, yogurt, and cream	0.78	0.98	0.51	0.15	0.46
Lower fat and skim milk and lowfat yogurt	11.52	12.98	12.76	13.65	17.03
All cheese (including cheese soup and sauce)	0.68	0.12	0.64	0.04	0.13
Milk drinks and milk desserts	0.31	0.18	0.14	0.09	0.23
Meat and beans					
Beef, pork, veal, lamb, and game	3.72	6.14	6.58	3.73	7.75
Chicken, turkey, and game birds	1.19	4.50	4.90	9.72	4.75
Fish and fish products	14.94	1.14	2.44	6.97	1.55
Bacon, sausages, and luncheon meats (including spreads)	0.27	0.06	0.15	0.04	0.15
Nuts, nut butters, and seeds	0.61	1.28	4.76	3.98	5.98
Eggs and egg mixtures	0.07	0.04	0.12	0.13	0.07
Other foods					
Table fats, oils, and salad dressings	1.14	0.43	0.70	0.68	0.51
Gravies, sauces, condiments, and spices	0.91	0.66	0.35	0.57	0.18
Coffee and tea	0.01	0.00	0.05	0.02	0.07
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	0.79	0.40	0.71	0.27	0.28
Sugars, sweets, and candies	0.29	0.20	0.21	0.02	0.15
Soups (ready-to-serve and condensed)	0.17	2.86	1.21	1.35	1.64
Soups (dry)	0.01	0.01	0.01	0.12	0.04
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	0.24	0.03	0.08	0.01	0.03

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones.

The numbers are rounded; thus, when summed, they may not equal 100 percent.

Table A-4c. Expenditure shares for food categories in the Liberal Food Plan, by age-gender group, 2007

Food category	Children				
	1 year	2-3 years	4-5 years	6-8 years	9-11 years
<i>Percent of Cost</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	0.00	0.04	5.07	2.41	3.37
Whole grain cereals (including hot cereal mixes)	3.72	1.17	1.07	0.50	0.37
Popcorn and other whole grain snacks	0.00	5.61	1.90	3.67	2.86
Non-whole grain breads, cereals, rice, pasta, pies pastries, snacks, and flours	4.59	7.25	5.82	6.58	6.91
Vegetables					
All potato products	2.38	2.29	1.09	0.85	1.95
Dark-green vegetables	6.51	2.60	2.22	2.00	7.55
Orange vegetables	0.41	1.74	3.34	1.45	4.97
Canned and dry beans, lentils, and peas (legumes)	3.71	6.15	5.78	6.45	3.44
Other vegetables	18.30	11.46	5.05	6.82	8.80
Fruits					
Whole fruits	21.09	9.69	25.25	22.25	18.68
Fruit juices	4.47	3.08	3.29	2.50	2.30
Milk products					
Whole milk, yogurt, and cream	16.35	0.64	0.34	0.24	0.27
Lower fat and skim milk and lowfat yogurt	0.00	18.44	11.66	8.98	9.76
All cheese (including cheese soup and sauce)	0.14	0.44	0.40	0.22	0.33
Milk drinks and milk desserts	0.41	0.19	0.46	0.39	0.29
Meat and beans					
Beef, pork, veal, lamb, and game	3.54	1.21	3.06	3.93	4.27
Chicken, turkey, and game birds	0.85	0.62	1.58	2.34	1.54
Fish and fish products	6.89	19.44	17.39	22.34	15.31
Bacon, sausages, and luncheon meats (including spreads)	0.10	0.87	0.27	0.60	1.44
Nuts, nut butters, and seeds	2.44	1.49	1.84	2.26	2.75
Eggs and egg mixtures	0.03	0.42	0.06	0.02	0.07
Other foods					
Table fats, oils, and salad dressings	0.81	1.96	0.67	0.72	0.60
Gravies, sauces, condiments, and spices	1.45	1.55	1.17	0.95	0.45
Coffee and tea	0.00	0.00	0.00	0.00	0.00
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	0.40	0.66	0.47	0.59	0.98
Sugars, sweets, and candies	1.14	0.72	0.19	0.31	0.41
Soups (ready-to-serve and condensed)	0.06	0.02	0.20	0.45	0.17
Soups (dry)	0.18	0.06	0.18	0.06	0.06
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	0.02	0.19	0.19	0.13	0.11

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones.

For children age 1, all milk and yogurt were assigned to the whole milk, yogurt, and cream category, because dietary guidance recommends consumption of primarily whole milk products for these children.

The numbers are rounded; thus, when summed, they may not equal 100 percent.

Table A-4c. Expenditure shares for food categories in the Liberal Food Plan, by age-gender group, 2007 (cont'd)

Food category	Males				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
<i>Percent of Cost</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	0.93	5.61	3.36	5.33	4.48
Whole grain cereals (including hot cereal mixes)	1.01	2.45	8.64	0.90	0.96
Popcorn and other whole grain snacks	9.72	2.99	2.06	3.45	0.88
Non-whole grain breads, cereals, rice, pasta, pies, pastries, snacks, and flours	9.33	7.15	5.75	5.50	3.65
Vegetables					
All potato products	2.30	2.55	2.04	2.13	2.42
Dark-green vegetables	2.93	2.76	3.62	5.88	12.39
Orange vegetables	1.42	1.93	2.03	2.74	1.62
Canned and dry beans, lentils, and peas (legumes)	4.94	4.26	11.49	4.52	13.80
Other vegetables	9.48	11.07	8.96	8.96	9.36
Fruits					
Whole fruits	13.84	17.23	11.72	15.47	12.70
Fruit juices	4.41	1.64	1.64	1.40	1.93
Milk products					
Whole milk, yogurt, and cream	0.40	0.59	0.56	0.54	0.31
Lower fat and skim milk, and lowfat yogurt	10.40	8.72	8.71	10.33	9.55
All cheese (including cheese soup and sauce)	0.55	0.47	1.24	0.56	0.31
Milk drinks and milk desserts	0.30	0.36	0.95	2.39	1.13
Meat and beans					
Beef, pork, veal, lamb, and game	6.38	13.99	7.71	7.41	5.40
Chicken, turkey, and game birds	0.90	0.72	4.89	4.92	8.40
Fish and fish products	12.50	3.43	5.38	9.56	4.64
Bacon, sausages, and luncheon meats (including spreads)	0.31	0.65	1.10	0.44	0.31
Nuts, nut butters, and seeds	3.04	4.16	2.10	2.64	1.13
Eggs and egg mixtures	0.45	0.16	0.24	0.25	0.12
Other foods					
Table fats, oils, and salad dressings	1.16	0.84	1.10	0.97	1.12
Gravies, sauces, condiments, and spices	1.24	1.66	1.08	0.42	0.65
Coffee and tea	0.00	0.01	0.04	0.14	0.05
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	0.82	1.58	2.33	1.91	0.34
Sugars, sweets, and candies	0.53	1.86	0.48	0.49	0.24
Soups (ready-to-serve and condensed)	0.41	1.01	0.57	0.54	2.05
Soups (dry)	0.20	0.10	0.15	0.09	0.10
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	0.11	0.03	0.06	0.11	0.00

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones.

The numbers are rounded; thus, when summed, they may not equal 100 percent.

Table A-4c. Expenditure shares for food categories in the Liberal Food Plan, by age-gender group, 2007 (cont'd)

Food category	Females				
	12-13 years	14-18 years	19-50 years	51-70 years	71+ years
<i>Percent of Cost</i>					
Grains					
Whole grain breads, rice, pasta, and pastries (including whole grain flours)	8.40	11.78	4.47	5.80	6.22
Whole grain cereals (including hot cereal mixes)	1.34	2.21	6.86	0.58	0.90
Popcorn and other whole grain snacks	2.83	0.23	0.16	5.26	0.17
Non-whole grain breads, cereals, rice, pasta, pies pastries, snacks, and flours	8.77	5.21	4.95	1.61	4.43
Vegetables					
All potato products	2.32	2.06	2.03	2.82	1.10
Dark-green vegetables	4.38	5.16	7.99	3.36	15.52
Orange vegetables	1.66	2.38	1.58	1.97	2.15
Canned and dry beans, lentils, and peas (legumes)	5.04	13.91	7.12	3.96	4.70
Other vegetables	6.53	8.91	8.38	8.52	7.72
Fruits					
Whole fruits	15.67	13.74	16.58	21.10	16.92
Fruit juices	2.18	1.84	1.80	0.59	0.60
Milk products					
Whole milk, yogurt, and cream	0.36	0.42	0.41	0.44	0.32
Lower fat and skim milk, lowfat yogurt	10.23	10.24	12.82	13.83	15.24
All cheese (including cheese soup and sauce)	0.60	2.26	0.63	0.06	0.04
Milk drinks and milk desserts	0.34	0.27	0.47	0.22	0.17
Meat and beans					
Beef, pork, veal, lamb, and game	8.69	6.21	5.21	6.34	6.20
Chicken, turkey, and game birds	4.36	1.04	2.25	2.73	3.02
Fish and fish products	10.37	3.63	6.31	14.32	5.56
Bacon, sausages, and luncheon meats (including spreads)	0.83	0.91	0.58	0.03	0.75
Nuts, nut butters, and seeds	1.12	2.86	4.86	4.13	5.35
Eggs and egg mixtures	0.07	0.11	0.12	0.20	0.08
Other foods					
Table fats, oils, and salad dressings	1.17	0.98	0.89	0.51	0.45
Gravies, sauces, condiments, and spices	0.72	1.14	1.00	0.42	0.17
Coffee and tea	0.01	0.11	0.04	0.04	0.02
Soft drinks, sodas, fruit drinks, and ades (including rice beverages)	1.02	0.81	1.12	0.20	0.09
Sugars, sweets, and candies	0.43	0.63	0.38	0.18	0.02
Soups (ready-to-serve and condensed)	0.32	0.82	0.73	0.60	1.96
Soups (dry)	0.18	0.04	0.06	0.18	0.13
Frozen or refrigerated entrees (including pizza, fish sticks, and frozen meals)	0.05	0.09	0.21	0.00	0.00

Notes: Food in as-purchased form, which includes uncooked grain products; raw, canned, and frozen vegetables; fruit juice concentrates; and meat with bones.

The numbers are rounded; thus, when summed, they may not equal 100 percent.

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